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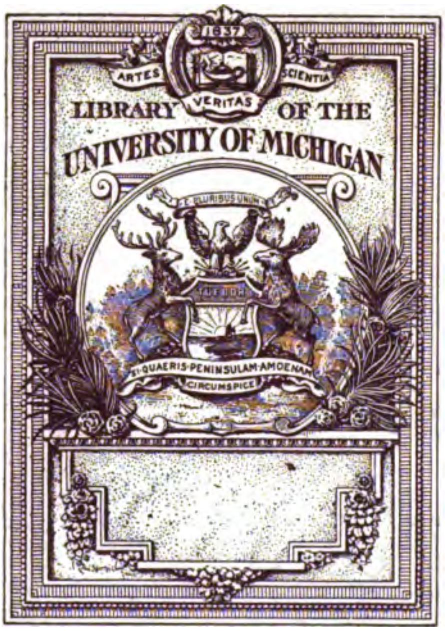

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AMERICAN EPHEMERIS

AND

NAUTICAL ALMANAC

FOR THE YEAR

1906

FIRST EDITION

PUBLISHED BY AUTHORITY OF CONGRESS

WASHINGTON
BUREAU OF EQUIPMENT
1902

PREFACE.

The general arrangement of the *American Ephemeris and Nautical Almanac*, with few slight changes, remains the same with the volume for the year 1900.

The Ephemeris is divided into four parts, as follows:

Part I, *Ephemeris for the Meridian of Greenwich*, which gives the ephemerides of the Sun and Moon, the geocentric and heliocentric positions of the major planets, the Sun's co-ordinates, and other fundamental astronomical data for equidistant intervals of Greenwich mean time.

Part II, *Ephemeris for the Meridian of Washington*, which gives the ephemerides for the fixed stars, Sun, Moon, and major planets for transit over the meridian of the new Naval Observatory, Washington. The mean places of the fixed stars and the data for their reduction are also included in this part.

Part III, *Phenomena*, which contains predictions of phenomena to be observed, with data for their computation. Washington mean time for the meridian of the new Naval Observatory is used throughout this part except in a few cases, notably those of eclipses, where Greenwich mean time seems more convenient.

Part IV, *Star numbers, apparent places of stars, and other data based on the Constants of the Paris Conference of 1896*, which gives precession, obliquity, etc., Besselian star-numbers, independent star-numbers, ephemerides of four northern and one southern circumpolar stars, and ephemerides of twenty-five other stars whose apparent places differ from those given in Part II.

WALTER S. HARSHMAN,
Professor of Mathematics, U. S. Navy,
Director Nautical Almanac.

WASHINGTON, *November, 1902.*

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CORRECTIONS.

Ephemeris, 1903. (*First edition only.*)

Page.			
305,	Third line from bottom	*for* δ Draconis	*read* δ Doradus.
366,	η Bootis, Dec. 25 and 35	*for* $6.05^{.31}$ $6.39^{.34}$	*read* $6.04^{.30}$ $6.36^{.32}$
377,	θ Ophiuchi	*for* $17^h\ 15^m$	*read* $17^h\ 16^m$
386,	κ Cephei (pr.)	*for* $-77^\circ\ 25'$	*read* $+77^\circ\ 25'$
509, 510,	Elongations of Mimas and Tethys.		

By reason of the error of Hall's elements $-4^h.9$ should be added to the times of elongations of Mimas, and $+0^h.9$ to those of Tethys, to make them conform with the elements of H. Struve.

575,	Second column, 26th line	*for* -11.18	*read* $+11.18$

and corrected value of τ will give, on page 576, correct results as follows—

576,	Albany Mean Time, June 15	*for* $13^h\ 31^m.9$ $14^h\ 35^m.2$	*read* $13^h\ 53^m.9$ $14^h\ 58^m.7$
	Angle of position: P	*for* $27^\circ\ 45'$ $288^\circ\ 15'$	*read* $29^\circ\ 9'$ $287^\circ\ 23'$

583, Second line, after "Appendix I," insert—

"In the case of the elongations of Mimas and Tethys, however, corrections have been applied to make them conform with the elements of Prof. H. Struve, in *Beobachtungen der Saturnstrabanten*, St. Petersburg, 1898."

Ephemeris, 1904. (*In some copies.*)

VII,	Dominical Letter	*for* C	*read* C B
203,	Last line, seventh column	*for* $21^h\ 8^m.5$	*read* $21^h\ 8^m.0$
439,	Limits	*for* $+8^\circ\ 40'.4$ $162^\circ\ 47'.8$ E $+7^\circ\ 5'.4$ $162^\circ\ 51'.4$ E $-25^\circ\ 49'.3$ $69^\circ\ 48'.7$ W	*read* $+8^\circ\ 41'.0$ $162^\circ\ 47'.7$ E $+7^\circ\ 4'.9$ $162^\circ\ 51'.5$ E $-25^\circ\ 49'.7$ $69^\circ\ 48'.9$ W

583, Second line, after "Appendix I," insert—

"In the case of the elongations of Mimas and Tethys, however, corrections have been applied to make them conform with the elements of Prof. H. Struve, in *Beobachtungen der Saturnstrabanten*, St. Petersburg, 1898."

Ephemeris, 1905. (*First edition only.*)

203,	Last line, Upper Transit	*for* 26.0 1.81	*read* 25.5 1.80

CHRONOLOGICAL ERAS AND CYCLES.

CHRONOLOGICAL ERAS.

THE YEAR 1906, WHICH COMPRISES THE LATTER PART OF THE 130TH AND THE BEGINNING OF THE 131ST YEAR OF THE INDEPENDENCE OF THE UNITED STATES OF AMERICA, CORRESPONDS TO—

The year 6619 of the Julian Period;

“ 7414–7415 of the Byzantine era, the year 7415 commencing on September 1;

“ 5666–5667 of the Jewish era, the year 5667 commencing on September 20, or, more exactly, at sunset on September 19;

“ 2659 since the foundation of Rome, according to VARRO;

“ 2653 since the beginning of the era of NABONASSAR, which has been assigned to Wednesday, the 26th of February of the 3967th year of the Julian Period; corresponding, in the notation of chronologists, to the 747th, and, in the notation of astronomers, to the 746th year before the birth of CHRIST;

“ 2682 of the Olympiads, or the second year of the 671st Olympiad, commencing in July, 1906, if we fix the era of the Olympiads at 775½ years before CHRIST, or near the beginning of July of the year 3938 of the Julian Period;

“ 2218 of the Grecian era, or the era of the SELEUCIDÆ, which began near the vernal equinox of the year, — 311 = B. C. 312, = 4402 of the Julian Period;

“ 1622 of the era of DIOCLETIAN;

“ 2566 of the Japanese era and to the 39th year of the period entitled “Meiji.”

The year 1324 of the Mohammedan era, or the era of the Hegira, begins on the 25th day of February, 1906.

The first day of January of the year 1906 is the 2,417,212th day since the commencement of the Julian Period.

CHRONOLOGICAL CYCLES.

Dominical Letter	G	Solar Cycle	11
Epact	5	Roman Indiction	4
Lunar Cycle or Golden Number .	7	Julian Period	6619

SYMBOLS AND ABBREVIATIONS.

SIGNS OF THE PLANETS, ETC.

☉	The Sun.	♂	Mars.
☾	The Moon.	♃	Jupiter.
☿	Mercury.	♄	Saturn.
♀	Venus.	♅	Uranus.
⊕	The Earth.	♆	Neptune.

SIGNS OF THE ZODIAC.

Spring Signs.	1.	♈	Aries.	Autumn Signs.	7	♎	Libra.
	2.	♉	Taurus.		8.	♏	Scorpius.
	3.	♊	Gemini.		9.	♐	Sagittarius.
Summer Signs.	4.	♋	Cancer.	Winter Signs.	10.	♑	Capricornus.
	5.	♌	Leo.		11.	♒	Aquarius.
	6.	♍	Virgo.		12.	♓	Pisces.

ASPECTS.

☌	Conjunction, or having the same Longitude or Right Ascension.
□	Quadrature, or differing ±90° in Longitude or Right Ascension.
☍	Opposition, or differing 180° in Longitude or Right Ascension.

ABBREVIATIONS.

☊	Ascending Node.	°	Degrees.
☋	Descending Node.	′	Minutes of Arc.
N.	North.	″	Seconds of Arc.
S.	South.	h	Hours.
E.	East.	m	Minutes of Time.
W.	West.	s	Seconds of Time.

PART I

ASTRONOMICAL EPHEMERIS

FOR THE

MERIDIAN OF GREENWICH.

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S					Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.			
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Mon.	1	18 44 21.55	11.050	S. 23 3 27.3	+ 11.70	16 17.85	71.07	3 26.42	1.190
Tues.	2	18 48 46.60	11.037	22 58 32.4	12.85	16 17.86	71.03	3 54.83	1.176
Wed.	3	18 53 11.28	11.021	22 53 10.4	13.99	16 17.86	70.98	4 22.89	1.161
Thur.	4	18 57 35.59	11.004	22 47 20.9	+ 15.13	16 17.86	70.94	4 50.56	1.144
Frid.	5	19 1 59.47	10.987	22 41 4.2	16.26	16 17.85	70.88	5 17.80	1.126
Sat.	6	19 6 22.92	10.968	22 34 20.6	17.38	16 17.84	70.82	5 44.62	1.108
SUN.	7	19 10 45.89	10.947	22 27 10.1	+ 18.49	16 17.82	70.75	6 10.96	1.088
Mon.	8	19 15 8.37	10.926	22 19 33.2	19.59	16 17.80	70.68	6 36.81	1.066
Tues.	9	19 19 30.33	10.904	22 11 29.8	20.68	16 17.77	70.61	7 2.15	1.044
Wed.	10	19 23 51.75	10.881	22 3 0.5	+ 21.76	16 17.73	70.54	7 26.95	1.022
Thur.	11	19 28 12.62	10.857	21 54 5.3	22.83	16 17.69	70.46	7 51.19	0.998
Frid.	12	19 32 32.90	10.833	21 44 44.4	23.89	16 17.64	70.38	8 14.85	0.974
Sat.	13	19 36 52.59	10.808	21 34 58.1	+ 24.94	16 17.58	70.30	8 37.92	0.949
SUN.	14	19 41 11.66	10.782	21 24 46.9	25.98	16 17.51	70.21	9 0.37	0.922
Mon.	15	19 45 30.09	10.755	21 14 10.9	27.01	16 17.44	70.12	9 22.18	0.896
Tues.	16	19 49 47.88	10.728	21 3 10.4	+ 28.02	16 17.37	70.03	9 43.36	0.869
Wed.	17	19 54 5.01	10.700	20 51 45.7	29.02	16 17.29	69.93	10 3.87	0.841
Thur.	18	19 58 21.45	10.671	20 39 57.2	30.01	16 17.21	69.83	10 23.71	0.812
Frid.	19	20 2 37.20	10.642	20 27 45.3	+ 30.98	16 17.12	69.73	10 42.85	0.783
Sat.	20	20 6 52.24	10.612	20 15 10.1	31.94	16 17.02	69.63	11 1.28	0.753
SUN.	21	20 11 6.55	10.582	20 2 11.9	32.89	16 16.93	69.53	11 18.99	0.722
Mon.	22	20 15 20.11	10.550	19 48 51.3	+ 33.82	16 16.83	69.42	11 35.94	0.691
Tues.	23	20 19 32.91	10.518	19 35 8.6	34.73	16 16.72	69.32	11 52.14	0.659
Wed.	24	20 23 44.93	10.485	19 21 4.1	35.63	16 16.61	69.21	12 7.56	0.626
Thur.	25	20 27 56.16	10.452	19 6 38.1	+ 36.51	16 16.50	69.10	12 22.20	0.593
Frid.	26	20 32 6.60	10.418	18 51 51.3	37.38	16 16.39	68.99	12 36.04	0.560
Sat.	27	20 36 16.22	10.384	18 36 44.0	38.23	16 16.27	68.88	12 49.07	0.526
SUN.	28	20 40 25.02	10.350	18 21 16.2	+ 39.06	16 16.15	68.76	13 1.28	0.491
Mon.	29	20 44 32.97	10.315	18 5 28.7	39.88	16 16.03	68.65	13 12.65	0.457
Tues.	30	20 48 40.11	10.281	17 49 21.8	40.68	16 15.90	68.53	13 23.20	0.422
Wed.	31	20 52 46.39	10.246	17 32 55.8	41.47	16 15.77	68.42	13 32.90	0.387
Thur.	32	20 56 51.85	10.211	S. 17 16 11.1	+ 42.24	16 15.63	68.30	13 41.78	0.352

Note.—The mean time of semidiameter passing the meridian may be found by substracting $0^s.19$ from the sidereal time. The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Apparent Declination.	THE SUN'S Diff. for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Mon.	1	18 44 20.92	11.046	S. 23 3 27.9	+ 11.70	3 26.35	1.190	18 40 54.57
Tues.	2	18 48 45.88	11.033	22 58 33.3	12.84	3 54.75	1.176	18 44 51.13
Wed.	3	18 53 10.48	11.017	22 53 11.4	13.98	4 22.80	1.161	18 48 47.68
Thur.	4	18 57 34.70	11.000	22 47 22.1	+ 15.12	4 50.46	1.144	18 52 44.24
Frid.	5	19 1 58.50	10.983	22 41 5.6	16.25	5 17.70	1.126	18 56 40.80
Sat.	6	19 6 21.87	10.964	22 34 22.2	17.37	5 44.51	1.108	19 0 37.36
SUN.	7	19 10 44.76	10.944	22 27 12.0	+ 18.48	6 10.85	1.088	19 4 33.91
Mon.	8	19 15 7.16	10.923	22 19 35.3	19.58	6 36.69	1.066	19 8 30.47
Tues.	9	19 19 29.05	10.901	22 11 32.2	20.67	7 2.02	1.044	19 12 27.02
Wed.	10	19 23 50.40	10.878	22 3 3.1	+ 21.75	7 26.82	1.022	19 16 23.58
Thur.	11	19 28 11.20	10.854	21 54 8.2	22.82	7 51.06	0.998	19 20 20.14
Frid.	12	19 32 31.41	10.830	21 44 47.6	23.88	8 14.72	0.974	19 24 16.70
Sat.	13	19 36 51.03	10.805	21 35 1.7	+ 24.93	8 37.78	0.949	19 28 13.25
SUN.	14	19 41 10.04	10.779	21 24 50.8	25.97	9 0.23	0.922	19 32 9.81
Mon	15	19 45 28.41	10.752	21 14 15.1	27.00	9 22.04	0.896	19 36 6.37
Tues.	16	19 49 46.14	10.725	21 3 14.9	+ 28.01	9 43.22	0.869	19 40 2.92
Wed.	17	19 54 3.21	10.697	20 51 50.6	29.01	10 3.73	0.841	19 43 59.48
Thur.	18	19 58 19.60	10.668	20 40 2.4	30.00	10 23.57	0.812	19 47 56.03
Frid.	19	20 2 35.30	10.639	20 27 50.8	+ 30.97	10 42.71	0.783	19 51 52.59
Sat.	20	20 6 50.29	10.609	20 15 15.9	31.93	11 1.14	0.753	19 55 49.15
SUN.	21	20 11 4.55	10.579	20 2 18.1	32.88	11 18.85	0.722	19 59 45.70
Mon.	22	20 15 18.07	10.548	19 48 57.8	+ 33.81	11 35.81	0.691	20 3 42.26
Tues.	23	20 19 30.83	10.516	19 35 15.5	34.72	11 52.01	0.659	20 7 38.82
Wed.	24	20 23 42.81	10.483	19 21 11.4	35.62	12 7.44	0.626	20 11 35.37
Thur.	25	20 27 54.01	10.450	19 6 45.8	+ 36.50	12 22.08	0.593	20 15 31.93
Frid.	26	20 32 4.41	10.416	18 51 59.3	37.37	12 35.93	0.560	20 19 28.48
Sat.	27	20 36 14.00	10.382	18 36 52.2	38.22	12 48.96	0.526	20 23 25.04
SUN.	28	20 40 22.77	10.348	18 21 24.7	+ 39.05	13 1.17	0.491	20 27 21.59
Mon.	29	20 44 30.70	10.313	18 5 37.5	39.87	13 12.55	0.457	20 31 18.15
Tues.	30	20 48 37.81	10.279	17 49 30.9	40.67	13 23.11	0.422	20 35 14.70
Wed.	31	20 52 44.07	10.244	17 33 5.2	41.46	13 32.83	0.387	20 39 11.26
Thur.	32	20 56 49.51	10.209	S. 17 16 20.8	+ 42.23	13 41.70	0.352	20 43 7.81

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon. The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

Diff. for 1 Hour, + $9^s.8565$. (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE.		THE SUN'S Diff. for 1 Hour.	THE SUN'S LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		λ	λ′					
		° ′ ″	′ ″	″	″			h m s
1	1	280 11 50.3	12 0.4	152.91	+ 0.04	9.992 6771	− 2.0	5 18 13.16
2	2	281 13 0.1	13 10.0	152.90	— 0.05	9.992 6732	1.1	5 14 17.24
3	3	282 14 9.7	14 19.4	152.89	0.13	9.992 6716	− 0.2	5 10 21.33
4	4	283 15 18.9	15 28.5	152.88	— 0.18	9.992 6723	+ 0.8	5 6 25.42
5	5	284 16 27.8	16 37.2	152.86	0.20	9.992 6756	1.9	5 2 29.51
6	6	285 17 36.4	17 45.6	152.85	0.19	9.992 6813	2.9	4 58 33.60
7	7	286 18 44.6	18 53.7	152.84	— 0.16	9.992 6897	+ 4.0	4 54 37.69
8	8	287 19 52.5	20 1.4	152.83	0.11	9.992 7007	5.2	4 50 41.78
9	9	288 21 0.0	21 8.7	152.81	— 0.03	9.992 7145	6.3	4 46 45.87
10	10	289 22 7.1	22 15.7	152.80	+ 0.07	9.992 7311	+ 7.5	4 42 49.96
11	11	290 23 14.0	23 22.4	152.78	0.19	9.992 7505	8.7	4 38 54.05
12	12	291 24 20.5	24 28.8	152.77	0.32	9.992 7728	9.9	4 34 58.14
13	13	292 25 26.8	25 34.9	152.76	+ 0.46	9.992 7979	+ 11.0	4 31 2.22
14	14	293 26 32.8	26 40.8	152.75	0.59	9.992 8257	12.1	4 27 6.31
15	15	294 27 38.6	27 46.4	152.74	0.72	9.992 8562	13.2	4 23 10.40
16	16	295 28 44.2	28 51.9	152.73	+ 0.83	9.992 8891	+ 14.2	4 19 14.49
17	17	296 29 49.6	29 57.1	152.72	0.90	9.992 9245	15.2	4 15 18.58
18	18	297 30 54.7	31 2.0	152.71	0.95	9.992 9620	16.1	4 11 22.67
19	19	298 31 59.5	32 6.6	152.69	+ 0.96	9.993 0016	+ 16.9	4 7 26.76
20	20	299 33 3.9	33 10.9	152.68	0.95	9.993 0432	17.7	4 3 30.85
21	21	300 34 8.0	34 14.8	152.66	0.90	9.993 0865	18.4	3 59 34.94
22	22	301 35 11.5	35 18.2	152.64	+ 0.82	9.993 1314	+ 19.0	3 55 39.03
23	23	302 36 14.4	36 20.9	152.61	0.72	9.993 1779	19.7	3 51 43.12
24	24	303 37 16.7	37 23.1	152.58	0.60	9.993 2258	20.3	3 47 47.21
25	25	304 38 18.1	38 24.4	152.54	+ 0.47	9.993 2752	+ 20.9	3 43 51.30
26	26	305 39 18.7	39 24.8	152.50	0.33	9.993 3260	21.5	3 39 55.39
27	27	306 40 18.2	40 24.2	152.46	0.20	9.993 3783	22.1	3 35 59.48
28	28	307 41 16.7	41 22.6	152.41	+ 0.08	9.993 4321	+ 22.8	3 32 3.57
29	29	308 42 14.0	42 19.7	152.36	— 0.03	9.993 4876	23.5	3 28 7.66
30	30	309 43 10.1	43 15.7	152.31	0.11	9.993 5447	24.2	3 24 11.75
31	31	310 44 4.9	44 10.4	152.26	0.17	9.993 6036	24.9	3 20 15.84
32	32	311 44 58.4	45 3.7	152.20	— 0.21	9.993 6644	+ 25.7	3 16 19.93

Note.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ′ are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour,
— 9^s.8296.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 1.2	14 57.1	55 1.5	− 1.36	54 46.4	− 1.15	5 25.5	1.80	6.3
2	14 53.6	14 50.9	54 33.8	0.94	54 23.9	0.72	6 8.1	1.76	7.3
3	14 48.9	14 47.6	54 16.5	0.50	54 11.8	− 0.29	6 50.3	1.76	8.3
4	14 47.1	14 47.2	54 9.7	− 0.07	54 10.1	+ 0.14	7 32.8	1.79	9.3
5	14 47.9	14 49.3	54 12.9	+ 0.33	54 17.9	0.51	8 16.5	1.85	10.3
6	14 51.2	14 53.7	54 25.1	0.68	54 34.2	0.83	9 1.9	1.93	11.3
7	14 56.7	15 0.1	54 45.0	+ 0.96	54 57.2	+ 1.08	9 49.3	2.02	12.3
8	15 3.7	15 7.6	55 10.7	1.17	55 25.1	1.24	10 38.8	2.10	13.3
9	15 11.8	15 16.1	55 40.3	1.29	55 56.0	1.32	11 30.0	2.16	14.3
10	15 20.4	15 24.7	56 11.9	+ 1.33	56 27.8	+ 1.32	12 22.2	2.19	15.3
11	15 29.0	15 33.2	56 43.6	1.30	56 59.0	1.27	13 14.8	2.18	16.3
12	15 37.3	15 41.2	57 14.0	1.22	57 28.3	1.17	14 7.0	2.16	17.3
13	15 44.9	15 48.4	57 42.0	+ 1.11	57 54.9	+ 1.05	14 58.4	2.13	18.3
14	15 51.7	15 54.9	58 7.1	0.98	58 18.5	0.92	15 49.0	2.10	19.3
15	15 57.8	16 0.5	58 29.2	0.86	58 39.1	0.80	16 39.2	2.09	20.3
16	16 3.0	16 5.3	58 48.3	+ 0.73	58 56.6	+ 0.66	17 29.6	2.12	21.3
17	16 7.3	16 9.1	59 4.2	0.59	59 10.8	0.51	18 21.1	2.17	22.3
18	16 10.6	16 11.8	59 16.3	0.42	59 20.7	0.32	19 14.1	2.25	23.3
19	16 12.7	16 13.1	59 23.9	+ 0.20	59 25.5	+ 0.07	20 9.2	2.33	24.3
20	16 13.1	16 12.6	59 25.4	− 0.08	59 23.5	− 0.23	21 6.2	2.40	25.3
21	16 11.5	16 9.8	59 19.6	0.41	59 13.6	0.59	22 4.3	2.43	26.3
22	16 7.6	16 4.8	59 5.4	− 0.77	58 55.0	− 0.96	23 2.5	2.40	27.3
23	16 1.4	15 57.4	58 42.4	1.13	58 27.8	1.30	23 59.2	2.31	28.3
24	15 52.9	15 48.0	58 11.4	1.44	57 53.5	1.56	☌	. .	29.3
25	15 42.8	15 37.3	57 34.2	− 1.65	57 14.1	− 1.71	0 53.4	2.19	0.8
26	15 31.7	15 26.0	56 53.5	1.73	56 32.7	1.72	1 44.5	2.07	1.8
27	15 20.4	15 15.0	56 12.2	1.68	55 52.4	1.61	2 32.6	1.95	2.8
28	15 9.9	15 5.2	55 33.6	− 1.51	55 16.1	− 1.39	3 18.2	1.86	3.8
29	15 0.9	14 57.1	55 0.4	1.24	54 46.5	1.07	4 2.1	1.80	4.8
30	14 53.9	14 51.3	54 34.9	0.88	54 25.6	0.67	4 44.8	1.78	5.8
31	14 49.5	14 48.4	54 18.8	0.46	54 14.5	− 0.24	5 27.4	1.78	6.8
32	14 47.9	14 48.2	54 12.9	− 0.02	54 14.0	+ 0.20	6 10.6	1.82	7.8

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 1.					WEDNESDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	23 56 55.77	1.9200	S. 3 39 51.6	10.064	0	1 27 23.94	1.8708	N. 4 20 10.8	9.725
1	23 58 50.90	1.9177	3 29 47.5	10.072	1	1 29 16.20	1.8712	4 29 53.7	9.705
2	0 0 45.89	1.9154	3 19 43.0	10.078	2	1 31 8.48	1.8715	4 39 35.4	9.684
3	0 2 40.75	1.9132	3 9 38.2	10.083	3	1 33 0.78	1.8719	4 49 15.8	9.663
4	0 4 35.48	1.9110	2 59 33.1	10.087	4	1 34 53.11	1.8723	4 58 54.9	9.641
5	0 6 30.07	1.9088	2 49 27.8	10.090	5	1 36 45.46	1.8728	5 8 32.7	9.619
6	0 8 24.54	1.9068	2 39 22.3	10.093	6	1 38 37.85	1.8735	5 18 9.2	9.597
7	0 10 18.89	1.9048	2 29 16.6	10.097	7	1 40 30.28	1.8741	5 27 44.3	9.573
8	0 12 13.12	1.9029	2 19 10.7	10.099	8	1 42 22.74	1.8748	5 37 18.0	9.549
9	0 14 7.24	1.9010	2 9 4.7	10.100	9	1 44 15.25	1.8755	5 46 50.2	9.524
10	0 16 1.24	1.8992	1 58 58.7	10.101	10	1 46 7.80	1.8762	5 56 20.9	9.500
11	0 17 55.14	1.8974	1 48 52.6	10.102	11	1 48 0.39	1.8770	6 5 50.2	9.475
12	0 19 48.93	1.8957	1 38 46.5	10.101	12	1 49 53.04	1.8779	6 15 17.9	9.449
13	0 21 42.62	1.8940	1 28 40.5	10.100	13	1 51 45.74	1.8788	6 24 44.1	9.423
14	0 23 36.21	1.8924	1 18 34.5	10.099	14	1 53 38.50	1.8798	6 34 8.6	9.395
15	0 25 29.71	1.8908	1 8 28.6	10.097	15	1 55 31.31	1.8808	6 43 31.5	9.368
16	0 27 23.11	1.8893	0 58 22.9	10.094	16	1 57 24.19	1.8818	6 52 52.7	9.340
17	0 29 16.43	1.8880	0 48 17.3	10.092	17	1 59 17.13	1.8829	7 2 12.3	9.312
18	0 31 9.67	1.8866	0 38 11.9	10.088	18	2 1 10.14	1.8841	7 11 30.2	9.283
19	0 33 2.82	1.8852	0 28 6.8	10.083	19	2 3 3.22	1.8853	7 20 46.3	9.253
20	0 34 55.89	1.8839	0 18 1.9	10.078	20	2 4 56.38	1.8866	7 30 0.6	9.223
21	0 36 48.89	1.8827	S. 0 7 57.4	10.073	21	2 6 49.61	1.8878	7 39 13.0	9.192
22	0 38 41.82	1.8816	N. 0 2 6.8	10.067	22	2 8 42.92	1.8892	7 48 23.6	9.162
23	0 40 34.68	1.8805	N. 0 12 10.6	10.060	23	2 10 36.31	1.8906	N. 7 57 32.4	9.130
	TUESDAY 2.					THURSDAY 4.			
0	0 42 27.48	1.8795	N. 0 22 14.0	10.053	0	2 12 29.79	1.8921	N. 8 6 39.2	9.098
1	0 44 20.22	1.8785	0 32 17.0	10.046	1	2 14 23.36	1.8935	8 15 44.1	9.065
2	0 46 12.90	1.8775	0 42 19.5	10.038	2	2 16 17.01	1.8950	8 24 47.0	9.032
3	0 48 5.52	1.8766	0 52 21.5	10.028	3	2 18 10.76	1.8967	8 33 47.9	8.998
4	0 49 58.09	1.8758	1 2 22.9	10.019	4	2 20 4.61	1.8983	8 42 46.7	8.963
5	0 51 50.62	1.8751	1 12 23.8	10.010	5	2 21 58.55	1.8998	8 51 43.5	8.929
6	0 53 43.10	1.8743	1 22 24.1	10.000	6	2 23 52.59	1.9016	9 0 38.2	8.893
7	0 55 35.54	1.8737	1 32 23.8	9.989	7	2 25 46.74	1.9033	9 9 30.7	8.857
8	0 57 27.94	1.8731	1 42 22.8	9.978	8	2 27 40.99	1.9052	9 18 21.0	8.821
9	0 59 20.31	1.8726	1 52 21.1	9.965	9	2 29 35.36	1.9070	9 27 9.2	8.784
10	1 1 12.65	1.8721	2 2 18.6	9.953	10	2 31 29.83	1.9088	9 35 55.1	8.746
11	1 3 4.96	1.8716	2 12 15.4	9.941	11	2 33 24.42	1.9108	9 44 38.7	8.707
12	1 4 57.24	1.8712	2 22 11.5	9.928	12	2 35 19.12	1.9127	9 53 19.9	8.668
13	1 6 49.50	1.8709	2 32 6.7	9.913	13	2 37 13.94	1.9147	10 1 58.8	8.629
14	1 8 41.75	1.8707	2 42 1.0	9.898	14	2 39 8.88	1.9168	10 10 35.4	8.590
15	1 10 33.98	1.8704	2 51 54.5	9.884	15	2 41 3.95	1.9188	10 19 9.6	8.549
16	1 12 26.20	1.8703	3 1 47.1	9.868	16	2 42 59.14	1.9209	10 27 41.3	8.508
17	1 14 18.42	1.8702	3 11 38.7	9.852	17	2 44 54.46	1.9232	10 36 10.6	8.467
18	1 16 10.63	1.8701	3 21 29.3	9.835	18	2 46 49.92	1.9253	10 44 37.3	8.424
19	1 18 2.83	1.8701	3 31 18.9	9.818	19	2 48 45.50	1.9275	10 53 1.5	8.382
20	1 19 55.04	1.8702	3 41 7.5	9.801	20	2 50 41.22	1.9298	11 1 23.1	8.338
21	1 21 47.25	1.8703	3 50 55.0	9.783	21	2 52 37.08	1.9322	11 9 42.1	8.295
22	1 23 39.47	1.8704	4 0 41.4	9.764	22	2 54 33.08	1.9345	11 17 58.5	8.251
23	1 25 31.70	1.8706	4 10 26.7	9.745	23	2 56 29.22	1.9368	11 26 12.2	8.206
24	1 27 23.94	1.8708	N. 4 20 10.8	9.725	24	2 58 25.50	1.9393	N. 11 34 23.2	8.160

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 5.					SUNDAY 7.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	2 58 25.50	1.9393	N.11 34 23.2	8.160	0	4 34 49.79	2.0850	N.17 1 56.6	5.246
1	3 0 21.93	1.9418	11 42 31.4	8.113	1	4 36 54.99	2.0884	17 7 9.1	5.170
2	3 2 18.51	1.9443	11 50 36.8	8.067	2	4 39 0.40	2.0918	17 12 17.0	5.093
3	3 4 15.24	1.9468	11 58 39.4	8.020	3	4 41 6.00	2.0951	17 17 20.3	5.016
4	3 6 12.12	1.9493	12 6 39.2	7.972	4	4 43 11.81	2.0985	17 22 18.9	4.938
5	3 8 9.16	1.9519	12 14 36.0	7.923	5	4 45 17.82	2.1018	17 27 12.8	4.859
6	3 10 6.35	1.9545	12 22 29.9	7.873	6	4 47 24.03	2.1051	17 32 2.0	4.780
7	3 12 3.70	1.9572	12 30 20.8	7.824	7	4 49 30.43	2.1084	17 36 46.4	4.700
8	3 14 1.21	1.9598	12 38 8.8	7.774	8	4 51 37.04	2.1118	17 41 26.0	4.619
9	3 15 58.88	1.9625	12 45 53.7	7.723	9	4 53 43.85	2.1151	17 46 0.7	4.538
10	3 17 56.71	1.9653	12 53 35.6	7.672	10	4 55 50.85	2.1183	17 50 30.5	4.456
11	3 19 54.71	1.9681	13 1 14.3	7.618	11	4 57 58.05	2.1217	17 54 55.4	4.373
12	3 21 52.88	1.9709	13 8 49.8	7.566	12	5 0 5.45	2.1249	17 59 15.3	4.290
13	3 23 51.22	1.9738	13 16 22.2	7.513	13	5 2 13.04	2.1282	18 3 30.2	4.207
14	3 25 49.73	1.9766	13 23 51.3	7.458	14	5 4 20.83	2.1315	18 7 40.1	4.123
15	3 27 48.41	1.9794	13 31 17.2	7.404	15	5 6 28.82	2.1347	18 11 44.9	4.038
16	3 29 47.26	1.9823	13 38 39.8	7.349	16	5 8 37.00	2.1379	18 15 44.6	3.953
17	3 31 46.29	1.9853	13 45 59.1	7.293	17	5 10 45.37	2.1411	18 19 39.2	3.866
18	3 33 45.50	1.9883	13 53 15.0	7.237	18	5 12 53.93	2.1443	18 23 28.5	3.779
19	3 35 44.88	1.9913	14 0 27.5	7.179	19	5 15 2.69	2.1476	18 27 12.7	3.692
20	3 37 44.45	1.9943	14 7 36.5	7.122	20	5 17 11.64	2.1507	18 30 51.6	3.604
21	3 39 44.19	1.9973	14 14 42.1	7.063	21	5 19 20.77	2.1538	18 34 25.2	3.515
22	3 41 44.12	2.0003	14 21 44.1	7.004	22	5 21 30.10	2.1570	18 37 53.4	3.426
23	3 43 44.23	2.0034	N.14 28 42.6	6.945	23	5 23 39.61	2.1600	N.18 41 16.3	3.337
	SATURDAY 6.					MONDAY 8.			
0	3 45 44.53	2.0066	N.14 35 37.5	6.884	0	5 25 49.30	2.1631	N.18 44 33.8	3.247
1	3 47 45.02	2.0097	14 42 28.7	6.823	1	5 27 59.18	2.1662	18 47 45.9	3.156
2	3 49 45.69	2.0128	14 49 16.3	6.762	2	5 30 9.24	2.1692	18 50 52.5	3.065
3	3 51 46.55	2.0160	14 56 0.2	6.700	3	5 32 19.48	2.1722	18 53 53.7	2.973
4	3 53 47.61	2.0192	15 2 40.3	6.637	4	5 34 29.90	2.1752	18 56 49.3	2.880
5	3 55 48.85	2.0223	15 9 16.7	6.574	5	5 36 40.50	2.1781	18 59 39.3	2.787
6	3 57 50.29	2.0256	15 15 49.2	6.510	6	5 38 51.27	2.1810	19 2 23.8	2.694
7	3 59 51.92	2.0288	15 22 17.9	6.446	7	5 41 2.22	2.1839	19 5 2.6	2.600
8	4 1 53.74	2.0320	15 28 42.7	6.380	8	5 43 13.34	2.1868	19 7 35.8	2.506
9	4 3 55.76	2.0353	15 35 3.5	6.314	9	5 45 24.63	2.1896	19 10 3.3	2.412
10	4 5 57.97	2.0385	15 41 20.4	6.248	10	5 47 36.09	2.1924	19 12 25.2	2.317
11	4 8 0.38	2.0418	15 47 33.2	6.180	11	5 49 47.72	2.1952	19 14 41.3	2.220
12	4 10 2.99	2.0451	15 53 41.9	6.112	12	5 51 59.51	2.1978	19 16 51.6	2.123
13	4 12 5.79	2.0484	15 59 46.6	6.043	13	5 54 11.46	2.2006	19 18 56.1	2.026
14	4 14 8.80	2.0518	16 5 47.1	5.974	14	5 56 23.58	2.2033	19 20 54.8	1.929
15	4 16 12.00	2.0550	16 11 43.5	5.904	15	5 58 35.85	2.2058	19 22 47.6	1.832
16	4 18 15.40	2.0583	16 17 35.6	5.833	16	6 0 48.28	2.2084	19 24 34.6	1.734
17	4 20 19.00	2.0616	16 23 23.5	5.762	17	6 3 0.86	2.2109	19 26 15.7	1.635
18	4 22 22.79	2.0649	16 29 7.1	5.691	18	6 5 13.59	2.2134	19 27 50.8	1.536
19	4 24 26.79	2.0683	16 34 46.4	5.619	19	6 7 26.47	2.2159	19 29 20.0	1.437
20	4 26 30.99	2.0717	16 40 21.4	5.546	20	6 9 39.50	2.2183	19 30 43.2	1.337
21	4 28 35.39	2.0750	16 45 51.9	5.472	21	6 11 52.67	2.2208	19 32 0.4	1.237
22	4 30 39.99	2.0783	16 51 18.0	5.398	22	6 14 5.99	2.2232	19 33 11.6	1.136
23	4 32 44.79	2.0817	16 56 39.6	5.322	23	6 16 19.45	2.2254	19 34 16.7	1.035
24	4 34 49.79	2.0850	N.17 1 56.6	5.246	24	6 18 33.04	2.2277	N.19 35 15.8	0.934

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 9.					THURSDAY 11.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	6 18 33.04	2.2277	N.19 35 15.8	0.934	0	8 7 10.25	2.2788	N.18 19 7.6	4.128
1	6 20 46.77	2.2299	19 36 8.8	0.832	1	8 9 26.98	2.2787	18 14 56.8	4.232
2	6 23 0.63	2.2321	19 36 55.6	0.729	2	8 11 43.69	2.2784	18 10 39.8	4.336
3	6 25 14.62	2.2342	19 37 36.3	0.627	3	8 14 0.39	2.2782	18 6 16.5	4.440
4	6 27 28.73	2.2363	19 38 10.9	0.525	4	8 16 17.07	2.2779	18 1 47.0	4.543
5	6 29 42.97	2.2383	19 38 39.3	0.422	5	8 18 33.74	2.2777	17 57 11.4	4.645
6	6 31 57.33	2.2403	19 39 1.5	0.318	6	8 20 50.39	2.2773	17 52 29.6	4.748
7	6 34 11.81	2.2423	19 39 17.5	0.214	7	8 23 7.01	2.2768	17 47 41.7	4.850
8	6 36 26.40	2.2441	19 39 27.2	0.110	8	8 25 23.60	2.2763	17 42 47.6	4.952
9	6 38 41.10	2.2460	19 39 30.7	0.007	9	8 27 40.17	2.2759	17 37 47.5	5.053
10	6 40 55.92	2.2478	19 39 28.0	0.098	10	8 29 56.71	2.2753	17 32 41.3	5.154
11	6 43 10.84	2.2496	19 39 19.0	0.203	11	8 32 13.21	2.2747	17 27 29.0	5.255
12	6 45 25.87	2.2513	19 39 3.6	0.308	12	8 34 29.67	2.2741	17 22 10.7	5.355
13	6 47 41.00	2.2529	19 38 42.0	0.413	13	8 36 46.10	2.2735	17 16 46.4	5.455
14	6 49 56.22	2.2545	19 38 14.0	0.519	14	8 39 2.49	2.2728	17 11 16.1	5.554
15	6 52 11.54	2.2561	19 37 39.7	0.624	15	8 41 18.84	2.2721	17 5 39.9	5.653
16	6 54 26.95	2.2576	19 36 59.1	0.730	16	8 43 35.14	2.2713	16 59 57.8	5.751
17	6 56 42.45	2.2591	19 36 12.1	0.836	17	8 45 51.40	2.2706	16 54 9.8	5.848
18	6 58 58.04	2.2605	19 35 18.8	0.942	18	8 48 7.61	2.2698	16 48 16.0	5.946
19	7 1 13.71	2.2618	19 34 19.1	1.048	19	8 50 23.77	2.2689	16 42 16.3	6.043
20	7 3 29.46	2.2632	19 33 13.0	1.154	20	8 52 39.88	2.2681	16 36 10.8	6.139
21	7 5 45.29	2.2644	19 32 0.6	1.260	21	8 54 55.94	2.2672	16 29 59.6	6.235
22	7 8 1.19	2.2656	19 30 41.8	1.367	22	8 57 11.94	2.2662	16 23 42.6	6.331
23	7 10 17.16	2.2667	N.19 29 16.6	1.473	23	8 59 27.88	2.2653	N.16 17 19.9	6.425
	WEDNESDAY 10.					FRIDAY 12.			
0	7 12 33.19	2.2678	N.19 27 45.0	1.580	0	9 1 43.77	2.2643	N.16 10 51.6	6.518
1	7 14 49.29	2.2688	19 26 7.0	1.688	1	9 3 59.59	2.2632	16 4 17.7	6.612
2	7 17 5.45	2.2698	19 24 22.5	1.794	2	9 6 15.35	2.2622	15 57 38.1	6.706
3	7 19 21.67	2.2708	19 22 31.7	1.901	3	9 8 31.05	2.2611	15 50 53.0	6.798
4	7 21 37.95	2.2717	19 20 34.4	2.008	4	9 10 46.68	2.2600	15 44 2.4	6.889
5	7 23 54.27	2.2725	19 18 30.7	2.115	5	9 13 2.25	2.2589	15 37 6.3	6.980
6	7 26 10.65	2.2733	19 16 20.6	2.222	6	9 15 17.75	2.2578	15 30 4.8	7.071
7	7 28 27.07	2.2741	19 14 4.1	2.328	7	9 17 33.18	2.2566	15 22 57.8	7.161
8	7 30 43.54	2.2748	19 11 41.2	2.435	8	9 19 48.54	2.2554	15 15 45.5	7.250
9	7 33 0.04	2.2753	19 9 11.9	2.542	9	9 22 3.83	2.2543	15 8 27.8	7.339
10	7 35 16.58	2.2759	19 6 36.2	2.648	10	9 24 19.05	2.2530	15 1 4.8	7.427
11	7 37 33.15	2.2765	19 3 54.1	2.755	11	9 26 34.19	2.2518	14 53 36.6	7.513
12	7 39 49.76	2.2770	19 1 5.6	2.862	12	9 28 49.26	2.2506	14 46 3.2	7.600
13	7 42 6.39	2.2773	18 58 10.7	2.968	13	9 31 4.26	2.2493	14 38 24.6	7.687
14	7 44 23.04	2.2777	18 55 9.4	3.075	14	9 33 19.18	2.2480	14 30 40.8	7.772
15	7 46 39.72	2.2781	18 52 1.7	3.181	15	9 35 34.02	2.2468	14 22 52.0	7.855
16	7 48 56.41	2.2783	18 48 47.7	3.287	16	9 37 48.79	2.2455	14 14 58.2	7.939
17	7 51 13.12	2.2786	18 45 27.3	3.393	17	9 40 3.48	2.2442	14 6 59.3	8.022
18	7 53 29.84	2.2787	18 42 0.6	3.498	18	9 42 18.09	2.2428	13 58 55.5	8.104
19	7 55 46.57	2.2788	18 38 27.6	3.603	19	9 44 32.62	2.2415	13 50 46.8	8.186
20	7 58 3.30	2.2789	18 34 48.2	3.709	20	9 46 47.07	2.2402	13 42 33.2	8.267
21	8 0 20.04	2.2790	18 31 2.5	3.814	21	9 49 1.44	2.2388	13 34 14.8	8.347
22	8 2 36.78	2.2790	18 27 10.5	3.919	22	9 51 15.73	2.2375	13 25 51.6	8.426
23	8 4 53.52	2.2789	18 23 12.2	4.024	23	9 53 29.94	2.2362	13 17 23.7	8.504
24	8 7 10.25	2.2788	N.18 19 7.6	4.128	24	9 55 44.07	2.2348	N.13 8 51.1	8.582

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 13.					MONDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	9 55 44.07	2.2348	N. 13 8 51.1	8.582	0	11 41 39.24	2.1865	N. 5 4 23.6	11.244
1	9 57 58.12	2.2335	13 0 13.9	8.658	1	11 43 50.42	2.1861	4 53 8.0	11.276
2	10 0 12.09	2.2322	12 51 32.2	8.733	2	11 46 1.58	2.1859	4 41 50.5	11.307
3	10 2 25.98	2.2308	12 42 45.9	8.808	3	11 48 12.73	2.1857	4 30 31.2	11.336
4	10 4 39.79	2.2295	12 33 55.2	8.883	4	11 50 23.86	2.1854	4 19 10.2	11.364
5	10 6 53.52	2.2282	12 25 0.0	8.956	5	11 52 34.98	2.1853	4 7 47.5	11.392
6	10 9 7.17	2.2268	12 16 0.5	9.028	6	11 54 46.09	2.1852	3 56 23.2	11.418
7	10 11 20.74	2.2255	12 6 56.6	9.100	7	11 56 57.20	2.1851	3 44 57.3	11.444
8	10 13 34.23	2.2242	11 57 48.5	9.171	8	11 59 8.30	2.1850	3 33 29.9	11.468
9	10 15 47.64	2.2228	11 48 36.1	9.241	9	12 1 19.40	2.1850	3 22 1.1	11.492
10	10 18 0.97	2.2216	11 39 19.6	9.310	10	12 3 30.50	2.1850	3 10 30.9	11.514
11	10 20 14.23	2.2202	11 29 58.9	9.378	11	12 5 41.60	2.1851	2 58 59.4	11.535
12	10 22 27.40	2.2189	11 20 34.2	9.446	12	12 7 52.71	2.1853	2 47 26.7	11.555
13	10 24 40.50	2.2177	11 11 5.4	9.513	13	12 10 3.83	2.1854	2 35 52.8	11.574
14	10 26 53.52	2.2164	11 1 32.7	9.578	14	12 12 14.96	2.1856	2 24 17.8	11.593
15	10 29 6.47	2.2152	10 51 56.1	9.643	15	12 14 26.10	2.1858	2 12 41.7	11.609
16	10 31 19.34	2.2139	10 42 15.6	9.707	16	12 16 37.26	2.1862	2 1 4.7	11.625
17	10 33 32.14	2.2127	10 32 31.3	9.769	17	12 18 48.44	2.1865	1 49 26.7	11.640
18	10 35 44.86	2.2114	10 22 43.3	9.831	18	12 20 59.64	2.1868	1 37 47.9	11.653
19	10 37 57.51	2.2103	10 12 51.6	9.893	19	12 23 10.86	2.1873	1 26 8.3	11.667
20	10 40 10.10	2.2092	10 2 56.2	9.953	20	12 25 22.11	2.1878	1 14 27.9	11.678
21	10 42 22.61	2.2079	9 52 57.3	10.011	21	12 27 33.40	2.1883	1 2 46.9	11.688
22	10 44 35.05	2.2068	9 42 54.9	10.069	22	12 29 44.71	2.1888	0 51 5.3	11.698
23	10 46 47.43	2.2058	N. 9 32 49.0	10.127	23	12 31 56.06	2.1895	N. 0 39 23.1	11.707
	SUNDAY 14.					TUESDAY 16.			
0	10 48 59.74	2.2047	N. 9 22 39.7	10.183	0	12 34 7.45	2.1902	N. 0 27 40.4	11.714
1	10 51 11.99	2.2036	9 12 27.0	10.238	1	12 36 18.88	2.1908	0 15 57.4	11.720
2	10 53 24.17	2.2024	9 2 11.1	10.293	2	12 38 30.35	2.1916	N. 0 4 14.0	11.726
3	10 55 36.28	2.2014	8 51 51.9	10.347	3	12 40 41.87	2.1924	S. 0 7 29.7	11.729
4	10 57 48.34	2.2005	8 41 29.5	10.399	4	12 42 53.44	2.1933	0 19 13.5	11.732
5	11 0 0.34	2.1995	8 31 4.0	10.451	5	12 45 5.06	2.1942	0 30 57.5	11.734
6	11 2 12.28	2.1985	8 20 35.4	10.502	6	12 47 16.74	2.1952	0 42 41.6	11.735
7	11 4 24.16	2.1976	8 10 3.8	10.551	7	12 49 28.48	2.1961	0 54 25.7	11.735
8	11 6 35.99	2.1967	7 59 29.3	10.599	8	12 51 40.27	2.1971	1 6 9.8	11.733
9	11 8 47.76	2.1958	7 48 51.9	10.647	9	12 53 52.13	2.1983	1 17 53.7	11.731
10	11 10 59.48	2.1950	7 38 11.6	10.694	10	12 56 4.06	2.1994	1 29 37.5	11.727
11	11 13 11.16	2.1942	7 27 28.6	10.740	11	12 58 16.06	2.2006	1 41 21.0	11.722
12	11 15 22.78	2.1933	7 16 42.8	10.785	12	13 0 28.13	2.2018	1 53 4.1	11.716
13	11 17 34.36	2.1926	7 5 54.4	10.828	13	13 2 40.27	2.2030	2 4 46.9	11.709
14	11 19 45.89	2.1919	6 55 3.4	10.872	14	13 4 52.49	2.2043	2 16 29.2	11.701
15	11 21 57.39	2.1913	6 44 9.8	10.913	15	13 7 4.79	2.2058	2 28 11.0	11.692
16	11 24 8.84	2.1905	6 33 13.8	10.954	16	13 9 17.18	2.2072	2 39 52.2	11.682
17	11 26 20.25	2.1899	6 22 15.3	10.994	17	13 11 29.65	2.2086	2 51 32.8	11.670
18	11 28 31.63	2.1893	6 11 14.5	11.033	18	13 13 42.21	2.2101	3 3 12.6	11.657
19	11 30 42.97	2.1888	6 0 11.4	11.070	19	13 15 54.86	2.2117	3 14 51.6	11.643
20	11 32 54.28	2.1883	5 49 6.1	11.107	20	13 18 7.61	2.2133	3 26 29.8	11.628
21	11 35 5.56	2.1878	5 37 58.6	11.143	21	13 20 20.45	2.2149	3 38 7.0	11.613
22	11 37 16.81	2.1873	5 26 49.0	11.178	22	13 22 33.40	2.2167	3 49 43.3	11.596
23	11 39 28.04	2.1869	5 15 37.3	11.212	23	13 24 46.45	2.2183	4 1 18.5	11.578
24	11 41 39.24	2.1865	N. 5 4 23.6	11.244	24	13 26 59.60	2.2201	S. 4 12 52.6	11.558

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 17.					**FRIDAY 19.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	13 26 59.60	2.2201	S. 4 12 52.6	11.558	0	15 16 22.03	2.3489	S. 12 43 16.1	9.258
1	13 29 12.86	2.2220	4 24 25.5	11.537	1	15 18 43.06	2.3522	12 52 29.3	9.182
2	13 31 26.24	2.2239	4 35 57.1	11.515	2	15 21 4.29	2.3554	13 1 37.9	9.104
3	13 33 39.73	2.2258	4 47 27.3	11.493	3	15 23 25.71	2.3587	13 10 41.8	9.025
4	13 35 53.33	2.2277	4 58 56.2	11.469	4	15 25 47.33	2.3619	13 19 40.9	8.945
5	13 38 7.05	2.2298	5 10 23.6	11.443	5	15 28 9.14	2.3652	13 28 35.2	8.864
6	13 40 20.90	2.2318	5 21 49.4	11.417	6	15 30 31.15	2.3684	13 37 24.6	8.782
7	13 42 34.87	2.2339	5 33 13.7	11.391	7	15 32 53.35	2.3717	13 46 9.0	8.698
8	13 44 48.97	2.2361	5 44 36.3	11.362	8	15 35 15.75	2.3749	13 54 48.4	8.614
9	13 47 3.20	2.2383	5 55 57.1	11.332	9	15 37 38.34	2.3782	14 3 22.7	8.528
10	13 49 17.56	2.2404	6 7 16.1	11.301	10	15 40 1.13	2.3814	14 11 51.8	8.442
11	13 51 32.05	2.2426	6 18 33.2	11.269	11	15 42 24.11	2.3846	14 20 15.7	8.354
12	13 53 46.67	2.2449	6 29 48.4	11.236	12	15 44 47.28	2.3878	14 28 34.3	8.265
13	13 56 1.44	2.2473	6 41 1.5	11.202	13	15 47 10.64	2.3910	14 36 47.5	8.175
14	13 58 16.35	2.2498	6 52 12.6	11.167	14	15 49 34.20	2.3943	14 44 55.3	8.084
15	14 0 31.41	2.2522	7 3 21.5	11.129	15	15 51 57.95	2.3974	14 52 57.6	7.992
16	14 2 46.61	2.2546	7 14 28.1	11.091	16	15 54 21.89	2.4005	15 0 54.4	7.899
17	14 5 1.96	2.2571	7 25 32.4	11.052	17	15 56 46.01	2.4036	15 8 45.5	7.805
18	14 7 17.46	2.2597	7 36 34.3	11.012	18	15 59 10.32	2.4068	15 16 31.0	7.710
19	14 9 33.12	2.2623	7 47 33.8	10.971	19	16 1 34.82	2.4099	15 24 10.7	7.613
20	14 11 48.93	2.2648	7 58 30.8	10.928	20	16 3 59.51	2.4130	15 31 44.6	7.517
21	14 14 4.90	2.2675	8 9 25.2	10.884	21	16 6 24.38	2.4160	15 39 12.7	7.418
22	14 16 21.03	2.2702	8 20 16.9	10.839	22	16 8 49.43	2.4190	15 46 34.8	7.318
23	14 18 37.32	2.2728	S. 8 31 5.9	10.793	23	16 11 14.66	2.4220	S. 15 53 50.9	7.218
	THURSDAY 18.					**SATURDAY 20.**			
0	14 20 53.77	2.2756	S. 8 41 52.1	10.746	0	16 13 40.07	2.4250	S. 16 1 1.0	7.117
1	14 23 10.39	2.2784	8 52 35.4	10.698	1	16 16 5.66	2.4279	16 8 5.0	7.015
2	14 25 27.18	2.2812	9 3 15.8	10.648	2	16 18 31.42	2.4308	16 15 2.8	6.912
3	14 27 44.13	2.2840	9 13 53.1	10.597	3	16 20 57.36	2.4338	16 21 54.4	6.808
4	14 30 1.26	2.2869	9 24 27.4	10.545	4	16 23 23.47	2.4366	16 28 39.8	6.703
5	14 32 18.56	2.2898	9 34 58.5	10.492	5	16 25 49.75	2.4393	16 35 18.8	6.597
6	14 34 36.04	2.2928	9 45 26.4	10.438	6	16 28 16.19	2.4421	16 41 51.4	6.490
7	14 36 53.69	2.2957	9 55 51.0	10.382	7	16 30 42.80	2.4448	16 48 17.6	6.382
8	14 39 11.52	2.2987	10 6 12.2	10.324	8	16 33 9.57	2.4475	16 54 37.2	6.273
9	14 41 29.53	2.3018	10 16 29.9	10.267	9	16 35 36.50	2.4501	17 0 50.3	6.163
10	14 43 47.73	2.3048	10 26 44.2	10.208	10	16 38 3.58	2.4526	17 6 56.8	6.053
11	14 46 6.10	2.3077	10 36 54.9	10.148	11	16 40 30.81	2.4552	17 12 56.7	5.942
12	14 48 24.65	2.3108	10 47 1.9	10.086	12	16 42 58.20	2.4577	17 18 49.8	5.829
13	14 50 43.39	2.3139	10 57 5.2	10.023	13	16 45 25.73	2.4601	17 24 36.2	5.717
14	14 53 2.32	2.3170	11 7 4.7	9.960	14	16 47 53.41	2.4625	17 30 15.8	5.603
15	14 55 21.43	2.3201	11 17 0.4	9.895	15	16 50 21.23	2.4648	17 35 48.5	5.488
16	14 57 40.73	2.3233	11 26 52.1	9.828	16	16 52 49.19	2.4671	17 41 14.3	5.373
17	15 0 0.22	2.3264	11 36 39.8	9.762	17	16 55 17.28	2.4693	17 46 33.2	5.257
18	15 2 19.90	2.3296	11 46 23.5	9.693	18	16 57 45.51	2.4715	17 51 45.1	5.140
19	15 4 39.77	2.3328	11 56 3.0	9.623	19	17 0 13.86	2.4735	17 56 50.0	5.022
20	15 6 59.84	2.3361	12 5 38.3	9.553	20	17 2 42.33	2.4755	18 1 47.8	4.904
21	15 9 20.10	2.3393	12 15 9.4	9.482	21	17 5 10.92	2.4775	18 6 38.5	4.786
22	15 11 40.55	2.3424	12 24 36.1	9.408	22	17 7 39.63	2.4794	18 11 22.1	4.667
23	15 14 1.19	2.3457	12 33 58.3	9.333	23	17 10 8.45	2.4813	18 15 58.5	4.546
24	15 16 22.03	2.3489	S. 12 43 16.1	9.258	24	17 12 37.38	2.4831	S. 18 20 27.6	4.425

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 21.			
	h m s	s	° ′ ″	″
0	17 12 37.38	2.4831	S. 18 20 27.6	4.425
1	17 15 6.42	2.4848	18 24 49.5	4.304
2	17 17 35.55	2.4863	18 29 4.1	4.182
3	17 20 4.78	2.4879	18 33 11.3	4.059
4	17 22 34.10	2.4894	18 37 11.2	3.937
5	17 25 3.51	2.4909	18 41 3.7	3.813
6	17 27 33.01	2.4922	18 44 48.8	3.689
7	17 30 2.58	2.4934	18 48 26.4	3.564
8	17 32 32.22	2.4946	18 51 56.5	3.438
9	17 35 1.93	2.4958	18 55 19.0	3.313
10	17 37 31.71	2.4968	18 58 34.0	3.188
11	17 40 1.55	2.4978	19 1 41.5	3.062
12	17 42 31.44	2.4986	19 4 41.4	2.935
13	17 45 1.38	2.4994	19 7 33.7	2.808
14	17 47 31.37	2.5002	19 10 18.4	2.681
15	17 50 1.40	2.5008	19 12 55.4	2.553
16	17 52 31.46	2.5013	19 15 24.7	2.425
17	17 55 1.55	2.5018	19 17 46.4	2.297
18	17 57 31.67	2.5022	19 20 0.3	2.168
19	18 0 1.81	2.5024	19 22 6.6	2.040
20	18 2 31.96	2.5025	19 24 5.1	1.912
21	18 5 2.11	2.5026	19 25 55.9	1.783
22	18 7 32.27	2.5027	19 27 39.0	1.653
23	18 10 2.43	2.5026	S. 19 29 14.2	1.523
	MONDAY 22.			
0	18 12 32.58	2.5024	S. 19 30 41.7	1.393
1	18 15 2.72	2.5022	19 32 1.4	1.264
2	18 17 32.84	2.5018	19 33 13.4	1.135
3	18 20 2.93	2.5013	19 34 17.6	1.006
4	18 22 33.00	2.5008	19 35 14.1	0.877
5	18 25 3.03	2.5002	19 36 2.8	0.747
6	18 27 33.02	2.4995	19 36 43.7	0.617
7	18 30 2.97	2.4987	19 37 16.8	0.488
8	18 32 32.87	2.4978	19 37 42.2	0.359
9	18 35 2.71	2.4968	19 37 59.9	0.230
10	18 37 32.49	2.4958	19 38 9.8	0.100
11	18 40 2.20	2.4946	19 38 11.9	0.029
12	18 42 31.84	2.4933	19 38 6.3	0.158
13	18 45 1.40	2.4920	19 37 53.0	0.286
14	18 47 30.88	2.4906	19 37 32.0	0.414
15	18 50 0.27	2.4891	19 37 3.3	0.542
16	18 52 29.57	2.4875	19 36 27.0	0.669
17	18 54 58.77	2.4858	19 35 43.0	0.797
18	18 57 27.87	2.4840	19 34 51.4	0.923
19	18 59 56.85	2.4821	19 33 52.2	1.050
20	19 2 25.72	2.4802	19 32 45.4	1.177
21	19 4 54.47	2.4782	19 31 31.0	1.303
22	19 7 23.10	2.4761	19 30 9.1	1.428
23	19 9 51.60	2.4738	19 28 39.7	1.553
24	19 12 19.96	2.4715	S. 19 27 2.8	1.678

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 23.			
	h m s	s	° ′ ″	″
0	19 12 19.96	2.4715	S. 19 27 2.8	1.678
1	19 14 48.18	2.4692	19 25 18.4	1.802
2	19 17 16.26	2.4667	19 23 26.6	1.926
3	19 19 44.18	2.4641	19 21 27.3	2.048
4	19 22 11.95	2.4615	19 19 20.7	2.171
5	19 24 39.56	2.4588	19 17 6.8	2.293
6	19 27 7.01	2.4561	19 14 45.6	2.414
7	19 29 34.29	2.4532	19 12 17.1	2.536
8	19 32 1.39	2.4503	19 9 41.3	2.656
9	19 34 28.32	2.4473	19 6 58.4	2.774
10	19 36 55.06	2.4442	19 4 8.4	2.893
11	19 39 21.62	2.4410	19 1 11.2	3.012
12	19 41 47.98	2.4377	18 58 6.9	3.130
13	19 44 14.15	2.4345	18 54 55.6	3.247
14	19 46 40.12	2.4311	18 51 37.3	3.363
15	19 49 5.88	2.4277	18 48 12.1	3.478
16	19 51 31.44	2.4242	18 44 40.0	3.593
17	19 53 56.78	2.4206	18 41 1.0	3.707
18	19 56 21.91	2.4170	18 37 15.2	3.820
19	19 58 46.82	2.4133	18 33 22.6	3.932
20	20 1 11.51	2.4096	18 29 23.4	4.043
21	20 3 35.97	2.4058	18 25 17.5	4.153
22	20 6 0.20	2.4019	18 21 5.0	4.263
23	20 8 24.20	2.3980	S. 18 16 45.9	4.372
	WEDNESDAY 24.			
0	20 10 47.96	2.3940	S. 18 12 20.4	4.479
1	20 13 11.48	2.3899	18 7 48.4	4.587
2	20 15 34.75	2.3858	18 3 9.9	4.694
3	20 17 57.78	2.3817	17 58 25.1	4.799
4	20 20 20.56	2.3776	17 53 34.0	4.903
5	20 22 43.09	2.3733	17 48 36.7	5.007
6	20 25 5.36	2.3691	17 43 33.2	5.109
7	20 27 27.38	2.3648	17 38 23.6	5.210
8	20 29 49.14	2.3604	17 33 8.0	5.311
9	20 32 10.63	2.3560	17 27 46.3	5.411
10	20 34 31.86	2.3516	17 22 18.7	5.509
11	20 36 52.82	2.3472	17 16 45.2	5.607
12	20 39 13.52	2.3427	17 11 5.9	5.703
13	20 41 33.94	2.3381	17 5 20.9	5.798
14	20 43 54.09	2.3335	16 59 30.1	5.894
15	20 46 13.96	2.3289	16 53 33.6	5.988
16	20 48 33.56	2.3243	16 47 31.6	6.079
17	20 50 52.87	2.3196	16 41 24.1	6.171
18	20 53 11.91	2.3150	16 35 11.1	6.261
19	20 55 30.67	2.3103	16 28 52.8	6.350
20	20 57 49.14	2.3055	16 22 29.1	6.438
21	21 0 7.33	2.3008	16 16 0.2	6.526
22	21 2 25.23	2.2960	16 9 26.0	6.613
23	21 4 42.85	2.2913	16 2 46.7	6.698
24	21 7 0.18	2.2864	S. 15 56 2.3	6.782

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 25.					SATURDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	21 7 0.18	2.2864	S. 15 56 2.3	6.782	0	22 51 13.88	2.0626	S. 9 14 4.4	9.565
1	21 9 17.22	2.2816	15 49 12.9	6.865	1	22 53 17.51	2.0584	9 4 29.5	9.598
2	21 11 33.97	2.2768	15 42 18.5	6.947	2	22 55 20.89	2.0544	8 54 52.7	9.630
3	21 13 50.43	2.2718	15 35 19.3	7.027	3	22 57 24.04	2.0504	8 45 13.9	9.662
4	21 16 6.59	2.2670	15 28 15.3	7.107	4	22 59 26.94	2.0464	8 35 33.3	9.693
5	21 18 22.47	2.2622	15 21 6.5	7.186	5	23 1 29.61	2.0425	8 25 50.8	9.722
6	21 20 38.05	2.2573	15 13 53.0	7.263	6	23 3 32.04	2.0387	8 16 6.6	9.750
7	21 22 53.34	2.2524	15 6 34.9	7.340	7	23 5 34.25	2.0349	8 6 20.8	9.778
8	21 25 8.34	2.2476	14 59 12.2	7.416	8	23 7 36.23	2.0310	7 56 33.3	9.805
9	21 27 23.05	2.2427	14 51 45.0	7.490	9	23 9 37.98	2.0273	7 46 44.2	9.832
10	21 29 37.46	2.2378	14 44 13.4	7.563	10	23 11 39.50	2.0236	7 36 53.5	9.857
11	21 31 51.58	2.2329	14 36 37.5	7.635	11	23 13 40.81	2.0199	7 27 1.4	9.880
12	21 34 5.41	2.2280	14 28 57.2	7.707	12	23 15 41.89	2.0163	7 17 7.9	9.903
13	21 36 18.94	2.2231	14 21 12.7	7.776	13	23 17 42.76	2.0127	7 7 13.0	9.927
14	21 38 32.18	2.2183	14 13 24.1	7.845	14	23 19 43.41	2.0092	6 57 16.7	9.948
15	21 40 45.13	2.2133	14 5 31.3	7.913	15	23 21 43.86	2.0058	6 47 19.2	9.959
16	21 42 57.78	2.2084	13 57 34.5	7.979	16	23 23 44.10	2.0023	6 37 20.4	9.989
17	21 45 10.14	2.2036	13 49 33.8	8.045	17	23 25 44.13	1.9988	6 27 20.5	10.008
18	21 47 22.21	2.1988	13 41 29.1	8.110	18	23 27 43.96	1.9956	6 17 19.4	10.027
19	21 49 33.99	2.1938	13 33 20.6	8.173	19	23 29 43.59	1.9922	6 7 17.3	10.043
20	21 51 45.47	2.1890	13 25 8.3	8.236	20	23 31 43.02	1.9889	5 57 14.2	10.061
21	21 53 56.67	2.1843	13 16 52.3	8.298	21	23 33 42.26	1.9858	5 47 10.0	10.078
22	21 56 7.58	2.1794	13 8 32.6	8.358	22	23 35 41.31	1.9826	5 37 4.9	10.093
23	21 58 18.20	2.1746	S. 13 0 9.3	8.417	23	23 37 40.17	1.9795	S. 5 26 58.9	10.107
	FRIDAY 26.					SUNDAY 28.			
0	22 0 28.53	2.1698	S. 12 51 42.6	8.474	0	23 39 38.85	1.9764	S. 5 16 52.1	10.119
1	22 2 38.58	2.1651	12 43 12.4	8.532	1	23 41 37.34	1.9733	5 6 44.5	10.133
2	22 4 48.34	2.1603	12 34 38.8	8.588	2	23 43 35.65	1.9704	4 56 36.1	10.145
3	22 6 57.82	2.1557	12 26 1.8	8.643	3	23 45 33.79	1.9675	4 46 27.1	10.156
4	22 9 7.02	2.1509	12 17 21.6	8.698	4	23 47 31.75	1.9646	4 36 17.4	10.168
5	22 11 15.93	2.1463	12 8 38.1	8.751	5	23 49 29.54	1.9618	4 26 7.0	10.178
6	22 13 24.57	2.1416	11 59 51.5	8.802	6	23 51 27.16	1.9590	4 15 56.1	10.186
7	22 15 32.92	2.1369	11 51 1.9	8.853	7	23 53 24.62	1.9563	4 5 44.7	10.194
8	22 17 41.00	2.1323	11 42 9.2	8.903	8	23 55 21.92	1.9536	3 55 32.8	10.202
9	22 19 48.80	2.1278	11 33 13.5	8.952	9	23 57 19.05	1.9509	3 45 20.4	10.209
10	22 21 56.33	2.1233	11 24 14.9	9.000	10	23 59 16.03	1.9484	3 35 7.7	10.215
11	22 24 3.59	2.1187	11 15 13.5	9.046	11	0 1 12.86	1.9458	3 24 54.6	10.221
12	22 26 10.57	2.1141	11 6 9.4	9.092	12	0 3 9.53	1.9433	3 14 41.2	10.226
13	22 28 17.28	2.1097	10 57 2.5	9.137	13	0 5 6.06	1.9409	3 4 27.5	10.230
14	22 30 23.73	2.1053	10 47 53.0	9.180	14	0 7 2.44	1.9386	2 54 13.6	10.233
15	22 32 29.91	2.1008	10 38 40.9	9.223	15	0 8 58.69	1.9363	2 43 59.5	10.236
16	22 34 35.83	2.0964	10 29 26.2	9.266	16	0 10 54.80	1.9340	2 33 45.3	10.238
17	22 36 41.48	2.0921	10 20 9.0	9.307	17	0 12 50.77	1.9318	2 23 31.0	10.239
18	22 38 46.88	2.0878	10 10 49.4	9.346	18	0 14 46.61	1.9297	2 13 16.6	10.240
19	22 40 52.01	2.0834	10 1 27.5	9.384	19	0 16 42.33	1.9276	2 3 2.2	10.240
20	22 42 56.89	2.0792	9 52 3.3	9.423	20	0 18 37.92	1.9254	1 52 47.8	10.239
21	22 45 1.51	2.0749	9 42 36.8	9.460	21	0 20 33.38	1.9233	1 42 33.5	10.238
22	22 47 5.88	2.0708	9 33 8.1	9.496	22	0 22 28.72	1.9214	1 32 19.2	10.237
23	22 49 10.00	2.0667	9 23 37.3	9.531	23	0 24 23.95	1.9195	1 22 5.1	10.233
24	22 51 13.88	2.0626	S. 9 14 4.4	9.565	24	0 26 19.06	1.9176	S. 1 11 51.2	10.230

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 29.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	0 26 19.06	1.9176	S. 1 11 51.2	10.230
1	0 28 14.06	1.9158	1 1 37.5	10.226
2	0 30 8.96	1.9142	0 51 24.1	10.222
3	0 32 3.76	1.9124	0 41 10.9	10.218
4	0 33 58.45	1.9107	0 30 58.0	10.212
5	0 35 53.05	1.9092	0 20 45.5	10.204
6	0 37 47.55	1.9076	0 10 33.5	10.197
7	0 39 41.96	1.9061	S. 0 0 21.9	10.190
8	0 41 36.28	1.9047	N. 0 9 49.3	10.182
9	0 43 30.52	1.9033	0 20 0.0	10.173
10	0 45 24.67	1.9019	0 30 10.1	10.164
11	0 47 18.75	1.9007	0 40 19.7	10.154
12	0 49 12.75	1.8994	0 50 28.6	10.143
13	0 51 6.68	1.8982	1 0 36.9	10.132
14	0 53 0.54	1.8971	1 10 44.5	10.121
15	0 54 54.33	1.8960	1 20 51.4	10.108
16	0 56 48.06	1.8950	1 30 57.5	10.095
17	0 58 41.73	1.8940	1 41 2.8	10.082
18	1 0 35.34	1.8931	1 51 7.3	10.068
19	1 2 28.90	1.8923	2 1 11.0	10.053
20	1 4 22.41	1.8914	2 11 13.7	10.038
21	1 6 15.87	1.8906	2 21 15.6	10.023
22	1 8 9.28	1.8899	2 31 16.5	10.007
23	1 10 2.66	1.8893	N. 2 41 16.4	9.989

TUESDAY 30.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	1 11 56.00	1.8887	N. 2 51 15.2	9.972
1	1 13 49.30	1.8881	3 1 13.0	9.954
2	1 15 42.57	1.8876	3 11 9.7	9.936
3	1 17 35.81	1.8872	3 21 5.3	9.917
4	1 19 29.03	1.8868	3 30 59.7	9.897
5	1 21 22.22	1.8864	3 40 52.9	9.877
6	1 23 15.40	1.8862	3 50 44.9	9.857
7	1 25 8.56	1.8858	4 0 35.7	9.836
8	1 27 1.70	1.8856	4 10 25.2	9.814
9	1 28 54.83	1.8855	4 20 13.4	9.792
10	1 30 47.96	1.8854	4 30 0.2	9.768
11	1 32 41.08	1.8853	4 39 45.6	9.746
12	1 34 34.20	1.8853	4 49 29.7	9.723
13	1 36 27.32	1.8854	4 59 12.3	9.698
14	1 38 20.45	1.8855	5 8 53.4	9.673
15	1 40 13.58	1.8856	5 18 33.0	9.648
16	1 42 6.72	1.8858	5 28 11.1	9.623
17	1 43 59.88	1.8862	5 37 47.7	9.596
18	1 45 53.06	1.8864	5 47 22.6	9.568
19	1 47 46.25	1.8868	5 56 55.9	9.541
20	1 49 39.47	1.8872	6 6 27.5	9.513
21	1 51 32.71	1.8876	6 15 57.5	9.485
22	1 53 25.98	1.8881	6 25 25.7	9.456
23	1 55 19.28	1.8887	6 34 52.2	9.426
24	1 57 12.62	1.8892	N. 6 44 16.8	9.396

WEDNESDAY 31.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	1 57 12.62	1.8892	N. 6 44 16.8	9.396
1	1 59 5.99	1.8898	6 53 39.7	9.366
2	2 0 59.40	1.8906	7 3 0.7	9.335
3	2 2 52.86	1.8913	7 12 19.9	9.303
4	2 4 46.36	1.8921	7 21 37.1	9.271
5	2 6 39.91	1.8929	7 30 52.4	9.239
6	2 8 33.51	1.8938	7 40 5.8	9.206
7	2 10 27.17	1.8948	7 49 17.1	9.172
8	2 12 20.88	1.8958	7 58 26.4	9.138
9	2 14 14.66	1.8968	8 7 33.7	9.104
10	2 16 8.49	1.8978	8 16 38.9	9.068
11	2 18 2.39	1.8989	8 25 41.9	9.032
12	2 19 56.36	1.9001	8 34 42.8	8.997
13	2 21 50.40	1.9013	8 43 41.5	8.960
14	2 23 44.51	1.9025	8 52 38.0	8.923
15	2 25 38.70	1.9038	9 1 32.3	8.886
16	2 27 32.97	1.9052	9 10 24.3	8.847
17	2 29 27.32	1.9066	9 19 14.0	8.808
18	2 31 21.76	1.9080	9 28 1.3	8.769
19	2 33 16.28	1.9094	9 36 46.3	8.730
20	2 35 10.89	1.9110	9 45 28.9	8.690
21	2 37 5.60	1.9126	9 54 9.1	8.649
22	2 39 0.40	1.9142	10 2 46.8	8.607
23	2 40 55.30	1.9158	N. 10 11 22.0	8.565

THURSDAY, FEBRUARY 1.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	2 42 50.29	1.9174	N. 10 19 54.6	8.523

PHASES OF THE MOON.

			d	h	m
☽	First Quarter . . .	Jan.	2	2	52.3
○	Full Moon		10	4	36.8
☾	Last Quarter		17	8	48.8
●	New Moon		24	5	9.3

			d	h
☾	Apogee	Jan.	4	4.0
☾	Perigee		19	18.2

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	77 39 45	3339	79 3 12	3351	80 26 25	3361	81 49 26	3372
	Saturn	W.	28 31 57	2986	30 2 27	2997	31 32 44	3007	33 2 48	3017
	Mars	W.	24 8 26	3231	25 33 59	3243	26 59 17	3253	28 24 23	3264
	Jupiter	E.	59 18 36	2943	57 47 12	2955	56 16 3	2966	54 45 8	2977
	Aldebaran	E.	70 27 8	2951	68 55 54	2962	67 24 53	2972	65 54 5	2982
2	Sun	W.	88 41 36	3418	90 3 32	3426	91 25 19	3433	92 46 58	3439
	Saturn	W.	40 30 16	3060	41 59 15	3066	43 28 6	3073	44 56 48	3079
	Fomalhaut	W.	40 11 26	3725	41 27 47	3692	42 44 43	3662	44 2 11	3635
	Mars	W.	35 26 58	3310	36 50 58	3317	38 14 50	3324	39 38 34	3331
	Jupiter	E.	47 13 41	3024	45 43 58	3033	44 14 26	3041	42 45 4	3048
	Aldebaran	E.	58 23 0	3025	56 53 18	3031	55 23 44	3038	53 54 18	3044
	Pollux	E.	102 22 8	3083	100 53 38	3090	99 25 16	3096	97 57 1	3101
3	Sun	W.	99 33 36	3464	100 54 40	3468	102 15 40	3471	103 36 37	3473
	Saturn	W.	52 18 41	3103	53 46 47	3105	55 14 50	3108	56 42 50	3110
	Fomalhaut	W.	50 35 55	3534	51 55 41	3519	53 15 44	3504	54 36 4	3491
	Mars	W.	46 35 32	3355	47 58 40	3358	49 21 44	3361	50 44 45	3364
	α Pegasi	W.	37 42 28	4051	38 53 17	3992	40 5 4	3939	41 17 44	3893
	Jupiter	E.	35 20 26	3083	33 51 55	3089	32 23 32	3095	30 55 17	3101
	Aldebaran	E.	46 28 50	3067	45 0 0	3071	43 31 15	3073	42 2 32	3075
	Pollux	E.	90 37 20	3124	89 9 39	3127	87 42 2	3129	86 14 28	3131
4	Sun	W.	110 20 53	3477	111 41 43	3476	113 2 34	3475	114 23 26	3473
	Saturn	W.	64 2 19	3114	65 30 12	3114	66 58 5	3113	68 25 59	3110
	Fomalhaut	W.	61 21 10	3433	62 42 49	3424	64 4 38	3414	65 26 39	3404
	Mars	W.	57 39 21	3367	59 2 15	3366	60 25 10	3365	61 48 6	3364
	α Pegasi	W.	47 31 50	3709	48 48 27	3681	50 5 34	3654	51 23 10	3629
	Aldebaran	E.	34 39 27	3078	33 10 51	3078	31 42 15	3077	30 13 38	3075
	Pollux	E.	78 57 10	3138	77 29 46	3138	76 2 22	3137	74 34 57	3136
5	Sun	W.	121 8 25	3458	122 29 36	3454	123 50 51	3448	125 12 13	3444
	Saturn	W.	75 46 12	3096	77 14 26	3092	78 42 45	3088	80 11 9	3083
	Fomalhaut	W.	72 19 21	3359	73 42 24	3350	75 5 37	3342	76 29 0	3334
	Mars	W.	68 43 27	3348	70 6 43	3344	71 30 4	3339	72 53 30	3333
	α Pegasi	W.	57 57 27	3525	59 17 25	3506	60 37 43	3489	61 58 20	3472
	Pollux	E.	67 17 31	3128	65 49 55	3125	64 22 16	3123	62 54 34	3119
	Regulus	E.	102 57 50	3061	101 28 52	3056	99 59 49	3052	98 30 40	3047
6	Saturn	W.	87 34 50	3053	89 3 57	3046	90 33 13	3039	92 2 38	3031
	Fomalhaut	W.	83 28 20	3292	84 52 41	3283	86 17 12	3275	87 41 52	3267
	Mars	W.	79 52 22	3302	81 16 31	3294	82 40 49	3287	84 5 16	3279
	α Pegasi	W.	68 45 57	3395	70 8 19	3381	71 30 57	3367	72 53 51	3355
	α Arietis	W.	25 56 8	3900	27 9 28	3805	28 24 25	3724	29 40 46	3653
	Pollux	E.	55 35 2	3102	54 6 55	3099	52 38 44	3095	51 10 28	3091
	Regulus	E.	91 3 18	3017	89 33 26	3010	88 3 26	3003	86 33 17	2995
7	Saturn	W.	99 32 8	2990	101 2 33	2981	102 33 10	2971	104 3 59	2962
	Mars	W.	91 9 57	3234	92 35 26	3225	94 1 5	3215	95 26 56	3205
	α Pegasi	W.	79 52 2	3292	81 16 23	3280	82 40 58	3269	84 5 46	3258
	α Arietis	W.	36 19 12	3396	37 41 33	3357	39 4 39	3322	40 28 25	3289
	Pollux	E.	43 48 6	3077	42 19 28	3075	40 50 48	3074	39 22 6	3071
	Regulus	E.	79 0 4	2954	77 28 54	2945	75 57 32	2936	74 25 59	2926

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	83 12 14	3383	84 34 50	3392	85 57 16	3401	87 19 31	3410
	Saturn	W.	34 32 40	3026	36 2 20	3035	37 31 49	3044	39 1 7	3052
	Mars	W.	29 49 16	3274	31 13 58	3284	32 38 28	3293	34 2 48	3301
	Jupiter	E.	53 14 26	2986	51 43 56	2997	50 13 40	3006	48 43 35	3015
	Aldebaran	E.	64 23 30	2991	62 53 6	3001	61 22 54	3009	59 52 52	3017
2	Sun	W.	94 8 30	3446	95 29 55	3451	96 51 14	3456	98 12 27	3460
	Saturn	W.	46 25 23	3085	47 53 51	3090	49 22 13	3094	50 50 30	3099
	Fomalhaut	W.	45 20 8	3611	46 38 31	3589	47 57 18	3569	49 16 26	3550
	Mars	W.	41 2 10	3336	42 25 40	3342	43 49 3	3347	45 12 20	3352
	Jupiter	E.	41 15 51	3056	39 46 47	3062	38 17 51	3070	36 49 5	3076
	Aldebaran	E.	52 25 0	3049	50 55 48	3055	49 26 44	3059	47 57 44	3064
	Pollux	E.	96 28 53	3107	95 0 52	3111	93 32 56	3116	92 5 6	3120
3	Sun	W.	104 57 31	3475	106 18 23	3476	107 39 14	3477	109 0 4	3478
	Saturn	W.	58 10 47	3112	59 38 42	3114	61 6 35	3115	62 34 27	3115
	Fomalhaut	W.	55 56 38	3478	57 17 27	3466	58 38 29	3455	59 59 43	3444
	Mars	W.	52 7 43	3365	53 30 39	3366	54 53 34	3367	56 16 28	3368
	α Pegasi	W.	42 31 11	3850	43 45 22	3809	45 0 15	3773	46 15 45	3740
	Jupiter	E.	29 27 9	3109	27 59 10	3115	26 31 18	3123	25 3 36	3130
	Aldebaran	E.	40 33 52	3077	39 5 14	3078	37 36 37	3079	36 8 2	3079
	Pollux	E.	84 46 56	3134	83 19 28	3135	81 52 1	3136	80 24 35	3137
4	Sun	W.	115 44 20	3471	117 5 16	3469	118 26 15	3465	119 47 18	3462
	Saturn	W.	69 53 56	3109	71 21 55	3106	72 49 57	3104	74 18 2	3100
	Fomalhaut	W.	66 48 51	3395	68 11 13	3386	69 33 46	3377	70 56 29	3369
	Mars	W.	63 11 4	3361	64 34 5	3359	65 57 8	3355	67 20 16	3352
	α Pegasi	W.	52 41 13	3605	53 59 42	3583	55 18 35	3563	56 37 50	3543
	Aldebaran	E.	28 44 58	3073	27 16 16	3071	25 47 31	3069	24 18 43	3065
	Pollux	E.	73 7 31	3135	71 40 4	3134	70 12 35	3132	68 45 5	3129
5	Sun	W.	126 33 40	3438	127 55 13	3432	129 16 53	3426	130 38 40	3420
	Saturn	W.	81 39 40	3078	83 8 17	3073	84 37 0	3066	86 5 51	3060
	Fomalhaut	W.	77 52 32	3325	79 16 15	3317	80 40 7	3309	82 4 8	3300
	Mars	W.	74 17 3	3328	75 40 42	3322	77 4 28	3316	78 28 21	3309
	α Pegasi	W.	63 19 16	3455	64 40 31	3440	66 2 2	3424	67 23 51	3409
	Pollux	E.	61 26 47	3116	59 58 57	3113	58 31 3	3110	57 3 5	3105
	Regulus	E.	97 1 26	3042	95 32 5	3035	94 2 36	3030	92 33 1	3024
6	Saturn	W.	93 32 12	3024	95 1 55	3015	96 31 49	3007	98 1 53	2998
	Fomalhaut	W.	89 6 42	3259	90 31 41	3251	91 56 50	3243	93 22 8	3236
	Mars	W.	85 29 52	3270	86 54 38	3262	88 19 34	3253	89 44 40	3244
	α Pegasi	W.	74 16 59	3341	75 40 23	3328	77 4 2	3316	78 27 55	3304
	α Arietis	W.	30 58 23	3590	32 17 8	3534	33 36 54	3483	34 57 37	3437
	Pollux	E.	49 42 7	3088	48 13 43	3084	46 45 14	3082	45 16 42	3079
	Regulus	E.	85 2 58	2988	83 32 30	2980	82 1 52	2971	80 31 3	2963
7	Saturn	W.	105 34 59	2953	107 6 11	2943	108 37 36	2933	110 9 13	2923
	Mars	W.	96 52 59	3195	98 19 14	3185	99 45 41	3174	101 12 21	3163
	α Pegasi	W.	85 30 47	3247	86 56 1	3237	88 21 27	3226	89 47 6	3216
	α Arietis	W.	41 52 49	3259	43 17 49	3230	44 43 23	3203	46 9 28	3178
	Pollux	E.	37 53 25	3075	36 24 45	3077	34 56 7	3081	33 27 34	3086
	Regulus	E.	72 54 13	2917	71 22 16	2908	69 50 7	2897	68 17 44	2887

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
8	α Pegasi	W.	91 12 56	3206	92 38 58	3197	94 5 11	3188	95 31 35	3179
	α Arietis	W.	47 36 4	3154	49 3 9	3131	50 30 41	3109	51 58 39	3088
	Jupiter	W.	25 21 33	2926	26 53 19	2909	28 25 26	2894	29 57 53	2879
	Regulus	E.	66 45 9	2877	65 12 21	2867	63 39 20	2857	62 6 6	2847
9	α Arietis	W.	59 24 35	2996	60 54 53	2979	62 25 32	2962	63 56 32	2947
	Jupiter	W.	37 44 42	2811	39 18 55	2799	40 53 24	2787	42 28 9	2775
	Aldebaran	W.	25 52 8	2795	27 26 43	2784	29 1 32	2773	30 36 35	2763
	Regulus	E.	54 16 32	2794	52 41 56	2784	51 7 7	2772	49 32 3	2762
10	α Arietis	W.	71 36 14	2876	73 9 4	2863	74 42 11	2850	76 15 34	2837
	Jupiter	W.	50 25 48	2717	52 2 5	2706	53 38 37	2696	55 15 23	2685
	Aldebaran	W.	38 35 19	2710	40 11 46	2700	41 48 26	2690	43 25 20	2679
	Regulus	E.	41 33 16	2710	39 56 49	2699	38 20 8	2689	36 43 13	2679
	Spica	E.	95 19 12	2739	93 43 24	2728	92 7 22	2718	90 31 6	2708
11	α Arietis	W.	84 6 21	2782	85 41 13	2771	87 16 19	2762	88 51 37	2753
	Jupiter	W.	63 22 44	2634	65 0 53	2624	66 39 16	2615	68 17 51	2605
	Aldebaran	W.	51 33 13	2630	53 11 27	2620	54 49 55	2612	56 28 34	2602
	Regulus	E.	28 35 20	2630	26 57 5	2621	25 18 38	2611	23 39 58	2602
	Spica	E.	82 26 27	2660	80 48 53	2650	79 11 6	2641	77 33 7	2632
12	Jupiter	W.	76 33 55	2561	78 13 44	2553	79 53 44	2544	81 33 56	2536
	Aldebaran	W.	64 44 59	2558	66 24 52	2550	68 4 56	2541	69 45 12	2533
	Pollux	W.	22 27 49	2947	23 59 8	2892	25 31 37	2844	27 5 8	2803
	Spica	E.	69 20 18	2591	67 41 11	2584	66 1 54	2577	64 22 27	2569
13	Jupiter	W.	89 57 38	2499	91 38 53	2492	93 20 18	2485	95 1 53	2478
	Aldebaran	W.	78 9 17	2495	79 50 37	2487	81 32 8	2481	83 13 48	2474
	Pollux	W.	35 4 2	2663	36 41 32	2643	38 19 28	2624	39 57 50	2608
	Spica	E.	56 2 52	2538	54 22 32	2533	52 42 4	2528	51 1 30	2523
	Antares	E.	101 55 5	2558	100 15 12	2550	98 35 8	2542	96 54 53	2535
14	Aldebaran	W.	91 44 33	2441	93 27 10	2435	95 9 55	2429	96 52 49	2422
	Pollux	W.	48 14 50	2540	49 55 7	2529	51 35 40	2519	53 16 27	2509
	Spica	E.	42 37 14	2507	40 56 11	2506	39 15 6	2505	37 34 0	2505
	Antares	E.	88 31 13	2501	86 50 2	2495	85 8 42	2490	83 27 15	2484
	Sun	E.	133 20 52	2784	131 46 3	2777	130 11 5	2770	128 35 58	2763
15	Pollux	W.	61 43 37	2466	63 25 38	2459	65 7 49	2451	66 50 11	2444
	Regulus	W.	25 21 3	2394	27 4 46	2389	28 48 36	2384	30 32 34	2378
	Antares	E.	74 58 7	2460	73 15 57	2456	71 33 42	2452	69 51 21	2448
	Sun	E.	120 38 10	2732	119 2 12	2725	117 26 5	2719	115 49 50	2714
16	Pollux	W.	75 24 19	2413	77 7 35	2408	78 50 58	2403	80 34 29	2397
	Regulus	W.	39 14 14	2354	40 58 55	2349	42 43 43	2344	44 28 38	2340
	Antares	E.	61 18 27	2434	59 35 41	2433	57 52 53	2431	56 10 2	2431
	Sun	E.	107 46 45	2686	106 9 46	2681	104 32 40	2675	102 55 27	2671
17	Pollux	W.	89 13 49	2375	90 58 0	2371	92 42 17	2367	94 26 39	2363
	Regulus	W.	53 14 49	2319	55 0 21	2314	56 46 0	2310	58 31 44	2306
	Antares	E.	47 35 47	2434	45 53 1	2437	44 10 19	2442	42 27 44	2447
	Sun	E.	94 47 44	2647	93 9 53	2642	91 31 55	2638	89 53 52	2634

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
8	*a* Pegasi	W.	96 58 9	3171	98 24 53	3163	99 51 46	3156	101 18 48	3150
	a Arietis	W.	53 27 3	3069	54 55 51	3049	56 25 3	3031	57 54 38	3013
	JUPITER	W.	31 30 39	2864	33 3 44	2851	34 37 6	2837	36 10 46	2825
	Regulus	E.	60 32 39	2836	58 58 58	2825	57 25 3	2815	55 50 55	2804
9	*a* Arietis	W.	65 27 51	2932	66 59 29	2917	68 31 26	2903	70 3 41	2889
	JUPITER	W.	44 3 10	2763	45 38 27	2751	47 13 59	2740	48 49 46	2729
	Aldebaran	W.	32 11 52	2752	33 47 23	2742	35 23 7	2732	36 59 6	2720
	Regulus	E.	47 56 45	2752	46 21 14	2741	44 45 28	2731	43 9 29	2720
10	*a* Arietis	W.	77 49 14	2826	79 23 8	2814	80 57 18	2803	82 31 42	2792
	JUPITER	W.	56 52 23	2674	58 29 38	2664	60 7 6	2654	61 44 48	2643
	Aldebaran	W.	45 2 28	2669	46 39 49	2659	48 17 24	2649	49 55 12	2640
	Regulus	E.	35 6 5	2669	33 28 44	2659	31 51 9	2649	30 13 21	2640
	Spica	E.	88 54 37	2698	87 17 54	2688	85 40 58	2678	84 3 49	2669
11	*a* Arietis	W.	90 27 7	2744	92 2 49	2735	93 38 43	2726	95 14 48	2719
	JUPITER	W.	69 56 39	2596	71 35 39	2587	73 14 52	2578	74 54 17	2569
	Aldebaran	W.	58 7 27	2593	59 46 31	2584	61 25 48	2575	63 5 18	2567
	Regulus	E.	22 1 6	2593	20 22 1	2584	18 42 44	2575	17 3 15	2567
	Spica	E.	75 54 56	2624	74 16 34	2615	72 38 0	2606	70 59 14	2599
12	JUPITER	W.	83 14 19	2528	84 54 53	2521	86 35 37	2513	88 16 32	2505
	Aldebaran	W.	71 25 39	2525	73 6 18	2517	74 47 7	2510	76 28 6	2502
	Pollux	W.	28 39 32	2768	30 14 42	2737	31 50 33	2709	33 27 1	2684
	Spica	E.	62 42 50	2563	61 3 4	2556	59 23 8	2550	57 43 4	2544
13	JUPITER	W.	96 43 37	2472	98 25 30	2465	100 7 33	2459	101 49 44	2453
	Aldebaran	W.	84 55 38	2467	86 37 38	2461	88 19 47	2453	90 2 6	2447
	Pollux	W.	41 36 35	2593	43 15 40	2578	44 55 6	2565	46 34 49	2552
	Spica	E.	49 20 49	2519	47 40 3	2515	45 59 11	2512	44 18 14	2510
	Antares	E.	95 14 28	2528	93 33 54	2520	91 53 9	2514	90 12 16	2507
14	Aldebaran	W.	98 35 52	2417	100 19 2	2411	102 2 21	2405	103 45 48	2400
	Pollux	W.	54 57 28	2500	56 38 42	2490	58 20 9	2482	60 1 47	2474
	Spica	E.	35 52 54	2507	34 11 50	2509	32 30 50	2513	30 49 55	2520
	Antares	E.	81 45 39	2479	80 3 57	2474	78 22 7	2469	76 40 10	2465
	SUN	E.	127 0 42	2757	125 25 17	2750	123 49 43	2744	122 14 1	2737
15	Pollux	W.	68 32 43	2438	70 15 24	2431	71 58 14	2426	73 41 12	2419
	Regulus	W.	32 16 40	2373	34 0 53	2369	35 45 13	2364	37 29 40	2359
	Antares	E.	68 8 55	2445	66 26 24	2442	64 43 49	2439	63 1 9	2437
	SUN	E.	114 13 28	2708	112 36 59	2702	111 0 21	2697	109 23 37	2691
16	Pollux	W.	82 18 8	2393	84 1 53	2388	85 45 45	2383	87 29 44	2379
	Regulus	W.	46 13 39	2336	47 58 47	2331	49 44 1	2326	51 29 22	2322
	Antares	E.	54 27 11	2430	52 44 19	2430	51 1 27	2431	49 18 36	2432
	SUN	E.	101 18 8	2666	99 40 42	2661	98 3 9	2656	96 25 30	2651
17	Pollux	W.	96 11 7	2360	97 55 39	2356	99 40 17	2354	101 24 58	2351
	Regulus	W.	60 17 34	2302	62 3 30	2299	63 49 31	2295	65 35 38	2292
	Antares	E.	40 45 16	2453	39 2 57	2461	37 20 49	2472	35 38 56	2485
	SUN	E.	88 15 43	2629	86 37 28	2625	84 59 7	2621	83 20 41	2618

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
18	Regulus	W.	67 21 49	2288	69 8 6	2285	70 54 27	2283	72 40 52	2279
	Antares	E.	33 57 21	2499	32 16 6	2517	30 35 17	2540	28 55 0	2568
	Sun	E.	81 42 10	2615	80 3 35	2610	78 24 54	2607	76 46 9	2604
19	Regulus	W.	81 34 2	2267	83 20 50	2265	85 7 41	2263	86 54 35	2262
	Spica	W.	28 29 22	2391	30 13 9	2377	31 57 17	2364	33 41 43	2354
	Sun	E.	68 31 21	2591	66 52 13	2588	65 13 2	2587	63 33 49	2585
20	Spica	W.	42 27 3	2320	44 12 33	2316	45 58 10	2313	47 43 51	2311
	Sun	E.	55 17 14	2580	53 37 52	2580	51 58 30	2581	50 19 9	2581
21	Spica	W.	56 32 55	2306	58 18 46	2307	60 4 36	2308	61 50 23	2309
	Sun	E.	42 2 42	2589	40 23 32	2592	38 44 26	2596	37 5 25	2599
22	Spica	W.	70 38 30	2326	72 23 52	2331	74 9 7	2335	75 54 15	2341
	Sun	E.	28 51 41	2624	27 13 18	2630	25 35 4	2636	23 56 58	2644
26	Sun	W.	22 4 9	2983	23 34 43	2998	25 4 59	3012	26 34 57	3026
	a Arietis	E.	69 5 28	2802	67 31 2	2819	65 56 58	2838	64 23 20	2857
	Jupiter	E.	88 47 2	2643	87 9 5	2658	85 31 28	2672	83 54 10	2686
	Aldebaran	E.	100 39 19	2624	99 0 57	2638	97 22 54	2652	95 45 10	2666
27	Sun	W.	34 0 18	3101	35 28 27	3115	36 56 19	3130	38 23 52	3144
	a Arietis	E.	56 41 32	2962	55 10 31	2985	53 40 0	3009	52 9 58	3033
	Jupiter	E.	75 52 29	2759	74 17 7	2773	72 42 3	2788	71 7 19	2801
	Aldebaran	E.	87 41 15	2738	86 5 25	2751	84 29 53	2765	82 54 39	2779
28	Sun	W.	45 37 18	3216	47 3 8	3230	48 28 42	3243	49 54 0	3256
	Saturn	W.	21 6 21	2887	22 38 56	2899	24 11 16	2912	25 43 20	2924
	a Arietis	E.	44 47 45	3173	43 21 3	3205	41 54 59	3239	40 29 36	3275
	Jupiter	E.	63 18 10	2871	61 45 14	2884	60 12 35	2898	58 40 14	2910
	Aldebaran	E.	75 2 58	2845	73 29 29	2859	71 56 17	2871	70 23 21	2884
29	Sun	W.	56 56 45	3319	58 20 35	3330	59 44 12	3340	61 7 37	3351
	Saturn	W.	33 19 50	2982	34 50 25	2992	36 20 47	3002	37 50 57	3013
	Jupiter	E.	51 2 28	2974	49 31 42	2985	48 1 10	2996	46 30 52	3008
	Aldebaran	E.	62 42 30	2941	61 11 3	2951	59 39 49	2961	58 8 47	2971
30	Sun	W.	68 1 47	3398	69 24 6	3406	70 46 16	3414	72 8 17	3420
	Saturn	W.	45 18 49	3056	46 47 52	3064	48 16 46	3070	49 45 32	3077
	a Pegasi	W.	34 36 1	4219	35 44 9	4141	36 53 31	4073	38 3 59	4011
	Mars	W.	22 8 10	3320	23 31 58	3326	24 55 40	3332	26 19 15	3336
	Jupiter	E.	39 2 49	3061	37 33 51	3070	36 5 5	3081	34 36 32	3090
	Aldebaran	E.	50 36 35	3014	49 6 40	3022	47 36 54	3029	46 7 17	3035
	Pollux	E.	94 43 16	3071	93 14 31	3078	91 45 54	3085	90 17 26	3092
31	Sun	W.	78 56 37	3448	80 17 59	3452	81 39 17	3455	83 0 31	3458
	Saturn	W.	57 7 29	3103	58 35 35	3106	60 3 37	3110	61 31 34	3113
	a Pegasi	W.	44 9 37	3788	45 24 52	3755	46 40 41	3726	47 57 1	3698
	Mars	W.	33 15 51	3357	34 38 57	3361	36 1 58	3363	37 24 57	3365
	Jupiter	E.	27 16 45	3142	25 49 26	3153	24 22 20	3166	22 55 30	3179
	Aldebaran	E.	38 40 59	3061	37 12 2	3065	35 43 9	3067	34 14 19	3070
	Pollux	E.	82 56 55	3118	81 29 7	3122	80 1 24	3125	78 33 45	3129

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
18	Regulus	W.	74 27 22	2276	76 13 57	2274	78 0 35	2271	79 47 17	2269
	Antares	E.	27 15 21	2602	25 36 29	2645	23 58 35	2698	22 21 52	2765
	Sun	E.	75 7 19	2601	73 28 25	2599	71 49 28	2595	70 10 26	2593
19	Regulus	W.	88 41 31	2260	90 28 29	2259	92 15 29	2258	94 2 30	2258
	Spica	W.	35 26 24	2345	37 11 18	2337	38 56 24	2330	40 41 39	2324
	Sun	E.	61 54 33	2584	60 15 16	2582	58 35 56	2582	56 56 36	2580
20	Spica	W.	49 29 35	2308	51 15 23	2307	53 1 13	2306	54 47 4	2306
	Sun	E.	48 39 48	2582	47 0 28	2584	45 21 11	2585	43 41 55	2587
21	Spica	W.	63 36 9	2312	65 21 51	2315	67 7 29	2318	68 53 2	2322
	Sun	E.	35 26 28	2602	33 47 36	2607	32 8 51	2612	30 30 12	2618
22	Spica	W.	77 39 15	2347	79 24 7	2353	81 8 49	2360	82 53 22	2367
	Sun	E.	22 19 3	2652	20 41 18	2662	19 3 47	2672	17 26 29	2684
26	Sun	W.	28 4 38	3041	29 34 0	3056	31 3 4	3070	32 31 50	3085
	a Arietis	E.	62 50 6	2877	61 17 18	2897	59 44 55	2919	58 13 0	2940
	Jupiter	E.	82 17 11	2701	80 40 32	2715	79 4 12	2729	77 28 11	2744
	Aldebaran	E.	94 7 45	2680	92 30 39	2695	90 53 52	2709	89 17 24	2723
27	Sun	W.	39 51 8	3159	41 18 6	3173	42 44 47	3188	44 11 11	3202
	a Arietis	E.	50 40 26	3059	49 11 26	3085	47 42 58	3113	46 15 4	3142
	Jupiter	E.	69 32 52	2816	67 58 45	2829	66 24 55	2844	64 51 24	2857
	Aldebaran	E.	81 19 44	2792	79 45 6	2806	78 10 46	2819	76 36 43	2833
28	Sun	W.	51 19 3	3270	52 43 50	3282	54 8 23	3294	55 32 41	3307
	Saturn	W.	27 15 8	2937	28 46 40	2948	30 17 58	2960	31 49 1	2971
	a Arietis	E.	39 4 55	3314	37 40 59	3356	36 17 52	3401	34 55 37	3451
	Jupiter	E.	57 8 8	2924	55 36 20	2936	54 4 47	2949	52 33 30	2961
	Aldebaran	E.	68 50 41	2895	67 18 16	2907	65 46 6	2919	64 14 11	2930
29	Sun	W.	62 30 49	3361	63 53 50	3371	65 16 39	3380	66 39 18	3389
	Saturn	W.	39 20 54	3022	40 50 39	3031	42 20 13	3040	43 49 36	3048
	Jupiter	E.	45 0 49	3018	43 30 59	3029	42 1 23	3039	40 31 59	3051
	Aldebaran	E.	56 37 58	2981	55 7 21	2989	53 36 55	2998	52 6 40	3006
30	Sun	W.	73 30 11	3427	74 51 57	3433	76 13 36	3439	77 35 9	3443
	Saturn	W.	51 14 9	3083	52 42 39	3089	54 11 2	3095	55 39 18	3099
	a Pegasi	W.	39 15 28	3956	40 27 51	3907	41 41 3	3863	42 55 0	3824
	Mars	W.	27 42 45	3341	29 6 9	3345	30 29 28	3350	31 52 42	3354
	Jupiter	E.	33 8 10	3101	31 40 1	3110	30 12 3	3120	28 44 18	3130
	Aldebaran	E.	44 37 48	3041	43 8 26	3047	41 39 11	3052	40 10 2	3056
	Pollux	E.	88 49 6	3097	87 20 53	3103	85 52 47	3109	84 24 48	3114
31	Sun	W.	84 21 42	3461	85 42 50	3462	87 3 57	3463	88 25 2	3464
	Saturn	W.	62 59 28	3115	64 27 20	3117	65 55 9	3118	67 22 57	3119
	a Pegasi	W.	49 13 50	3673	50 31 6	3649	51 48 47	3627	53 6 52	3608
	Mars	W.	38 47 53	3367	40 10 47	3369	41 33 39	3369	42 56 31	3370
	Jupiter	E.	21 28 56	3195	20 2 41	3214	18 36 48	3237	17 11 22	3264
	Aldebaran	E.	32 45 33	3073	31 16 50	3074	29 48 9	3075	28 19 29	3077
	Pollux	E.	77 6 11	3132	75 38 40	3134	74 11 12	3137	72 43 47	3138

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Thur.	1	20 56 51.85	10.211	S. 17 16 11.1	+ 42.24	16 15.63	68.30	13 41.78	0.352
Frid.	2	21 0 56.45	10.175	16 59 8.3	42.99	16 15.49	68.18	13 49.80	0.317
Sat.	3	21 5 0.22	10.140	16 41 47.8	43.72	16 15.35	68.07	13 57.01	0.282
SUN.	4	21 9 3.14	10.105	16 24 9.7	+ 44.44	16 15.20	67.96	14 3.35	0.247
Mon.	5	21 13 5.23	10.071	16 6 14.8	45.14	16 15.04	67.85	14 8.88	0.213
Tues.	6	21 17 6.49	10.036	15 48 3.3	45.82	16 14.88	67.73	14 13.56	0.179
Wed.	7	21 21 6.93	10.002	15 29 35.6	+ 46.48	16 14.72	67.62	14 17.44	0.145
Thur.	8	21 25 6.56	9.969	15 10 52.1	47.13	16 14.55	67.50	14 20.51	0.111
Frid.	9	21 29 5.38	9.936	14 51 53.3	47.76	16 14.37	67.39	14 22.77	0.078
Sat.	10	21 33 3.42	9.903	14 32 39.5	+ 48.38	16 14.19	67.28	14 24.24	0.045
SUN.	11	21 37 0.67	9.871	14 13 11.3	48.98	16 14.01	67.17	14 24.93	0.013
Mon.	12	21 40 57.16	9.838	13 53 28.8	49.56	16 13.82	67.06	14 24.86	0.019
Tues.	13	21 44 52.89	9.807	13 33 32.5	+ 50.13	16 13.62	66.95	14 24.05	0.050
Wed.	14	21 48 47.89	9.777	13 13 23.0	50.68	16 13.42	66.84	14 22.50	0.080
Thur.	15	21 52 42.15	9.747	12 53 0.5	51.20	16 13.22	66.74	14 20.21	0.110
Frid.	16	21 56 35.71	9.717	12 32 25.5	+ 51.71	16 13.01	66.63	14 17.22	0.139
Sat.	17	22 0 28.56	9.688	12 11 38.4	52.21	16 12.80	66.53	14 13.54	0.168
SUN.	18	22 4 20.71	9.660	11 50 39.5	52.69	16 12.59	66.43	14 9.14	0.197
Mon.	19	22 8 12.19	9.632	11 29 29.3	+ 53.15	16 12.37	66.33	14 4.08	0.225
Tues.	20	22 12 3.00	9.605	11 8 8.3	53.59	16 12.15	66.23	13 58.36	0.253
Wed.	21	22 15 53.16	9.578	10 46 36.9	54.02	16 11.92	66.13	13 51.97	0.280
Thur.	22	22 19 42.65	9.551	10 24 55.5	+ 54.43	16 11.70	66.04	13 44.94	0.306
Frid.	23	22 23 31.51	9.524	10 3 4.3	54.82	16 11.47	65.95	13 37.27	0.332
Sat.	24	22 27 19.75	9.498	9 41 4.0	55.19	16 11.25	65.86	13 28.98	0.358
SUN.	25	22 31 7.38	9.472	9 18 54.9	+ 55.55	16 11.03	65.77	13 20.08	0.383
Mon.	26	22 34 54.41	9.448	8 56 37.6	55.89	16 10.80	65.69	13 10.59	0.408
Tues.	27	22 38 40.86	9.424	8 34 12.3	56.21	16 10.57	65.61	13 0.52	0.432
Wed.	28	22 42 26.73	9.400	8 11 39.5	56.52	16 10.34	65.53	12 49.85	0.455
Thur.	29	22 46 12.05	9.377	S. 7 48 59.7	+ 56.81	16 10.10	65.45	12 38.65	0.478

Note.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.18$ from the sidereal time. The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Apparent Declination.	THE SUN'S Diff. for 1 Hour.	Equation of Time to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Thur.	1	20 56 49.51	10.209	S. 17 16 20.8	+42.23	13 41.70	0.352	20 43 7.81
Frid.	2	21 0 54.10	10.174	16 59 18.3	42.98	13 49.73	0.317	20 47 4.37
Sat.	3	21 4 57.86	10.139	16 41 58.0	43.71	13 56.94	0.282	20 51 0.92
SUN.	4	21 9 0.77	10.104	16 24 20.2	+44.43	14 3.31	0.247	20 54 57.48
Mon.	5	21 13 2.85	10.070	16 6 25.5	45.13	14 8.83	0.213	20 58 54.03
Tues.	6	21 17 4.11	10.035	15 48 14.2	45.81	14 13.52	0.179	21 2 50.59
Wed.	7	21 21 4.55	10.001	15 29 46.7	+46.47	14 17.41	0.145	21 6 47.14
Thur.	8	21 25 4.18	9.968	15 11 3.4	47.12	14 20.48	0.111	21 10 43.70
Frid.	9	21 29 3.00	9.935	14 52 4.8	47.75	14 22.75	0.078	21 14 40.25
Sat.	10	21 33 1.04	9.902	14 32 51.2	+48.37	14 24.23	0.045	21 18 36.81
SUN.	11	21 36 58.29	9.870	14 13 23.1	48.97	14 24.93	0.013	21 22 33.36
Mon.	12	21 40 54.79	9.838	13 53 40.8	49.55	14 24.88	0.019	21 26 29.91
Tues.	13	21 44 50.53	9.807	13 33 44.6	+50.12	14 24.07	0.050	21 30 26.47
Wed.	14	21 48 45.54	9.777	13 13 35.2	50.67	14 22.52	0.080	21 34 23.02
Thur.	15	21 52 39.82	9.747	12 53 12.8	51.20	14 20.24	0.110	21 38 19.58
Frid.	16	21 56 33.39	9.717	12 32 37.8	+51.71	14 17.26	0.139	21 42 16.13
Sat.	17	22 0 26.26	9.688	12 11 50.8	52.21	14 13.58	0.168	21 46 12.68
SUN.	18	22 4 18.43	9.660	11 50 51.9	52.69	14 9.19	0.197	21 50 9.24
Mon.	19	22 8 9.93	9.632	11 29 41.8	+53.15	14 4.14	0.225	21 54 5.79
Tues.	20	22 12 0.76	9.605	11 8 20.8	53.59	13 58.42	0.253	21 58 2.34
Wed.	21	22 15 50.94	9.578	10 46 49.4	54.02	13 52.04	0.280	22 1 58.90
Thur.	22	22 19 40.46	9.551	10 25 7.9	+54.43	13 45.01	0.306	22 5 55.45
Frid.	23	22 23 29.35	9.524	10 3 16.7	54.82	13 37.35	0.332	22 9 52.00
Sat.	24	22 27 17.62	9.498	9 41 16.4	55.19	13 29.06	0.358	22 13 48.56
SUN.	25	22 31 5.28	9.473	9 19 7.3	+55.55	13 20.17	0.383	22 17 45.11
Mon.	26	22 34 52.34	9.449	8 56 49.9	55.89	13 10.68	0.408	22 21 41.66
Tues.	27	22 38 38.82	9.425	8 34 24.5	56.21	13 0.61	0.432	22 25 38.21
Wed.	28	22 42 24.72	9.401	8 11 51.6	56.52	12 49.95	0.455	22 29 34.77
Thur.	29	22 46 10.07	9.378	S. 7 49 11.7	+56.81	12 38.75	0.478	22 33 31.32

Note.—The semidiameter for mean noon may be assumed the same as that for apparent noon. The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

Diff. for 1 Hour,
+ $9^s.8565$.
(Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.			
		λ	λ′					
		° ′ ″	′ ″	″	″			h m s
1	32	311 44 58.4	45 3.7	152.20	– 0.21	9.993 6644	+ 25.7	3 16 19.93
2	33	312 45 50.6	45 55.8	152.15	0.21	9.993 7270	26.5	3 12 24.02
3	34	313 46 41.3	46 46.4	152.09	0.19	9.993 7916	27.3	3 8 28.12
4	35	314 47 30.7	47 35.6	152.03	— 0.13	9.993 8584	+ 28.2	3 4 32.21
5	36	315 48 18.7	48 23.5	151.97	— 0.06	9.993 9272	29.1	3 0 36.30
6	37	316 49 5.2	49 9.9	151.91	+ 0.03	9.993 9983	30.1	2 56 40.39
7	38	317 49 50.4	49 55.0	151.85	+ 0.15	9.994 0717	+ 31.1	2 52 44.48
8	39	318 50 34.2	50 38.6	151.79	0.28	9.994 1474	32.0	2 48 48.57
9	40	319 51 16.6	51 20.9	151.74	0.41	9.994 2255	33.0	2 44 52.66
10	41	320 51 57.7	52 1.9	151.69	+ 0.54	9.994 3060	+ 34.0	2 40 56.75
11	42	321 52 37.5	52 41.6	151.64	0.66	9.994 3888	35.0	2 37 0.85
12	43	322 53 16.1	53 20.0	151.59	0.78	9.994 4739	35.9	2 33 4.94
13	44	323 53 53.5	53 57.3	151.54	+ 0.87	9.994 5611	+ 36.8	2 29 9.03
14	45	324 54 29.7	54 33.4	151.49	0.92	9.994 6503	37.6	2 25 13.12
15	46	325 55 4.7	55 8.4	151.44	0.94	9.994 7413	38.3	2 21 17.22
16	47	326 55 38.6	55 42.1	151.39	+ 0.94	9.994 8340	+ 38.9	2 17 21.31
17	48	327 56 11.3	56 14.7	151.34	0.90	9.994 9281	39.5	2 13 25.40
18	49	328 56 42.7	56 46.0	151.28	0.83	9.995 0236	40.0	2 9 29.49
19	50	329 57 12.8	57 16.0	151.23	+ 0.74	9.995 1203	+ 40.5	2 5 33.58
20	51	330 57 41.6	57 44.7	151.17	0.62	9.995 2179	40.9	2 1 37.68
21	52	331 58 8.9	58 11.9	151.11	0.48	9.995 3165	41.3	1 57 41.77
22	53	332 58 34.7	58 37.6	151.04	+ 0.34	9.995 4159	+ 41.6	1 53 45.86
23	54	333 58 58.9	59 1.7	150.97	0.21	9.995 5160	41.9	1 49 49.96
24	55	334 59 21.4	59 24.1	150.90	+ 0.08	9.995 6168	42.2	1 45 54.05
25	56	335 59 42.2	59 44.8	150.83	— 0.04	9.995 7184	+ 42.5	1 41 58.14
26	57	337 0 1.1	0 3.6	150.75	0.14	9.995 8207	42.8	1 38 2.23
27	58	338 0 18.1	0 20.5	150.67	0.22	9.995 9238	43.1	1 34 6.33
28	59	339 0 33.1	0 35.4	150.59	— 0.26	9.996 0277	+ 43.5	1 30 10.42
29	60	340 0 46.2	0 48.4	150.50	— 0.28	9.996 1325	+ 43.8	1 26 14.51

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ′ are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour,
— $9^s.8296$.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	14 47.9	14 48.2	54 12.9	− 0.02	54 14.0	+ 0.20	6 10.6	1.82	7.8
2	14 49.3	14 51.0	54 17.8	+ 0.42	54 24.1	0.63	6 54.9	1.88	8.8
3	14 53.4	14 56.4	54 32.9	0.83	54 44.1	1.02	7 41.0	1.96	9.8
4	15 0.0	15 4.2	54 57.5	+ 1.19	55 12.9	+ 1.35	8 29.2	2.05	10.8
5	15 8.9	15 14.0	55 29.9	1.48	55 48.4	1.59	9 19.4	2.13	11.8
6	15 19.3	15 24.8	56 7.9	1.67	56 28.2	1.71	10 11.3	2.19	12.8
7	15 30.4	15 36.0	56 48.8	+ 1.72	57 9.4	+ 1.70	11 4.3	2.22	13.8
8	15 41.5	15 46.8	57 29.6	1.65	57 48.9	1.57	11 57.5	2.22	14.8
9	15 51.7	15 56.3	58 7.0	1.46	58 23.7	1.32	12 50.5	2.19	15.8
10	16 0.4	16 3.9	58 38.6	+ 1.16	58 51.6	+ 0.99	13 42.9	2.17	16.8
11	16 6.8	16 9.2	59 2.5	0.82	59 11.2	0.64	14 34.6	2.15	17.8
12	16 11.0	16 12.2	59 17.8	0.46	59 22.2	+ 0.28	15 26.2	2.15	18.8
13	16 12.9	16 13.1	59 24.7	+ 0.12	59 25.3	− 0.02	16 18.1	2.18	19.8
14	16 12.8	16 12.1	59 24.2	− 0.15	59 21.6	0.27	17 10.9	2.23	20.8
15	16 11.0	16 9.6	59 17.7	0.38	59 12.5	0.47	18 4.9	2.28	21.8
16	16 7.9	16 5.9	59 6.3	− 0.56	58 59.1	− 0.63	19 0.4	2.33	22.8
17	16 3.7	16 1.3	58 51.1	0.70	58 42.2	0.77	19 56.9	2.36	23.8
18	15 58.7	15 55.8	58 32.4	0.84	58 21.9	0.90	20 53.6	2.35	24.8
19	15 52.7	15 49.4	58 10.6	− 0.97	57 58.5	− 1.03	21 49.4	2.29	25.8
20	15 45.9	15 42.2	57 45.7	1.10	57 32.0	1.16	22 43.4	2.20	26.8
21	15 38.3	15 34.2	57 17.7	1.22	57 2.7	1.27	23 35.0	2.10	27.8
22	15 30.0	15 25.7	56 47.2	− 1.30	56 31.4	− 1.33	δ	. .	28.8
23	15 21.3	15 16.9	56 15.3	1.34	55 59.2	1.33	0 24.0	1.99	0.2
24	15 12.6	15 8.4	55 43.4	1.30	55 28.0	1.25	1 10.6	1.90	1.2
25	15 4.4	15 0.6	55 13.3	− 1.18	54 59.6	− 1.09	1 55.4	1.84	2.2
26	14 57.2	14 54.2	54 47.1	0.98	54 36.0	0.85	2 38.8	1.80	3.2
27	14 51.7	14 49.7	54 26.6	0.70	54 19.1	0.53	3 21.7	1.79	4.2
28	14 48.2	14 47.3	54 13.7	− 0.35	54 10.6	− 0.16	4 4.8	1.81	5.2
29	14 47.1	14 47.6	54 9.8	+ 0.04	54 11.6	+ 0.25	4 48.5	1.85	6.2

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 1.					SATURDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	2 42 50.29	1.9174	N.10 19 54.6	8.523	0	4 17 31.48	2.0398	N.16 10 1.3	5.850
1	2 44 45.39	1.9192	10 28 24.7	8.480	1	4 19 33.96	2.0430	16 15 50.2	5.780
2	2 46 40.59	1.9209	10 36 52.2	8.437	2	4 21 36.64	2.0463	16 21 34.9	5.709
3	2 48 35.90	1.9228	10 45 17.1	8.393	3	4 23 39.51	2.0494	16 27 15.3	5.638
4	2 50 31.32	1.9246	10 53 39.4	8.349	4	4 25 42.57	2.0527	16 32 51.5	5.568
5	2 52 26.85	1.9265	11 1 59.0	8.303	5	4 27 45.83	2.0559	16 38 23.4	5.495
6	2 54 22.50	1.9285	11 10 15.8	8.258	6	4 29 49.28	2.0591	16 43 50.9	5.422
7	2 56 18.27	1.9304	11 18 30.0	8.213	7	4 31 52.92	2.0624	16 49 14.0	5.348
8	2 58 14.15	1.9324	11 26 41.3	8.165	8	4 33 56.77	2.0658	16 54 32.7	5.275
9	3 0 10.16	1.9345	11 34 49.8	8.118	9	4 36 0.81	2.0690	16 59 47.0	5.200
10	3 2 6.29	1.9365	11 42 55.5	8.071	10	4 38 5.05	2.0723	17 4 56.7	5.125
11	3 4 2.54	1.9387	11 50 58.3	8.023	11	4 40 9.49	2.0756	17 10 2.0	5.050
12	3 5 58.93	1.9409	11 58 58.3	7.975	12	4 42 14.12	2.0788	17 15 2.7	4.973
13	3 7 55.45	1.9431	12 6 55.3	7.925	13	4 44 18.95	2.0822	17 19 58.8	4.897
14	3 9 52.10	1.9453	12 14 49.3	7.876	14	4 46 23.99	2.0856	17 24 50.3	4.819
15	3 11 48.88	1.9476	12 22 40.4	7.826	15	4 48 29.22	2.0888	17 29 37.1	4.741
16	3 13 45.81	1.9499	12 30 28.4	7.774	16	4 50 34.65	2.0922	17 34 19.2	4.662
17	3 15 42.87	1.9523	12 38 13.3	7.723	17	4 52 40.29	2.0956	17 38 56.5	4.583
18	3 17 40.08	1.9547	12 45 55.1	7.671	18	4 54 46.12	2.0989	17 43 29.1	4.503
19	3 19 37.43	1.9570	12 53 33.8	7.618	19	4 56 52.16	2.1023	17 47 56.9	4.423
20	3 21 34.92	1.9594	13 1 9.3	7.566	20	4 58 58.39	2.1056	17 52 19.8	4.341
21	3 23 32.56	1.9620	13 8 41.7	7.513	21	5 1 4.83	2.1090	17 56 37.8	4.260
22	3 25 30.36	1.9646	13 16 10.8	7.458	22	5 3 11.47	2.1123	18 0 51.0	4.178
23	3 27 28.31	1.9671	N.13 23 36.6	7.403	23	5 5 18.31	2.1157	N.18 4 59.2	4.094
	FRIDAY 2.					SUNDAY 4.			
0	3 29 26.41	1.9697	N.13 30 59.1	7.348	0	5 7 25.35	2.1190	N.18 9 2.3	4.011
1	3 31 24.67	1.9723	13 38 18.3	7.292	1	5 9 32.59	2.1223	18 13 0.5	3.928
2	3 33 23.08	1.9748	13 45 34.1	7.235	2	5 11 40.03	2.1257	18 16 53.6	3.843
3	3 35 21.65	1.9776	13 52 46.5	7.178	3	5 13 47.67	2.1290	18 20 41.6	3.758
4	3 37 20.39	1.9803	13 59 55.5	7.122	4	5 15 55.51	2.1323	18 24 24.5	3.672
5	3 39 19.29	1.9830	14 7 1.1	7.063	5	5 18 3.55	2.1357	18 28 2.2	3.585
6	3 41 18.35	1.9858	14 14 3.1	7.004	6	5 20 11.79	2.1389	18 31 34.7	3.499
7	3 43 17.58	1.9886	14 21 1.6	6.945	7	5 22 20.22	2.1423	18 35 2.1	3.412
8	3 45 16.98	1.9914	14 27 56.5	6.885	8	5 24 28.86	2.1456	18 38 24.1	3.323
9	3 47 16.55	1.9943	14 34 47.8	6.825	9	5 26 37.69	2.1488	18 41 40.8	3.235
10	3 49 16.29	1.9971	14 41 35.5	6.764	10	5 28 46.71	2.1520	18 44 52.3	3.146
11	3 51 16.20	2.0000	14 48 19.5	6.702	11	5 30 55.93	2.1553	18 47 58.3	3.055
12	3 53 16.29	2.0029	14 54 59.7	6.639	12	5 33 5.34	2.1585	18 50 58.9	2.965
13	3 55 16.55	2.0059	15 1 36.2	6.578	13	5 35 14.95	2.1618	18 53 54.1	2.875
14	3 57 17.00	2.0089	15 8 9.0	6.515	14	5 37 24.75	2.1649	18 56 43.9	2.783
15	3 59 17.62	2.0118	15 14 38.0	6.451	15	5 39 34.74	2.1681	18 59 28.1	2.691
16	4 1 18.42	2.0148	15 21 3.1	6.387	16	5 41 44.92	2.1713	19 2 6.8	2.598
17	4 3 19.40	2.0179	15 27 24.4	6.322	17	5 43 55.29	2.1744	19 4 39.9	2.506
18	4 5 20.57	2.0210	15 33 41.7	6.255	18	5 46 5.85	2.1776	19 7 7.5	2.413
19	4 7 21.92	2.0241	15 39 55.0	6.189	19	5 48 16.60	2.1807	19 9 29.4	2.318
20	4 9 23.46	2.0272	15 46 4.4	6.123	20	5 50 27.53	2.1837	19 11 45.7	2.224
21	4 11 25.18	2.0303	15 52 9.8	6.055	21	5 52 38.64	2.1868	19 13 56.3	2.129
22	4 13 27.09	2.0334	15 58 11.0	5.987	22	5 54 49.94	2.1898	19 16 1.2	2.034
23	4 15 29.19	2.0366	16 4 8.2	5.919	23	5 57 1.42	2.1928	19 18 0.4	1.938
24	4 17 31.48	2.0398	N.16 10 1.3	5.850	24	5 59 13.08	2.1958	N.19 19 53.7	1.841

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 5.					WEDNESDAY 7.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	5 59 13.08	2.1958	N.19 19 53.7	1.841	0	7 47 24.32	2.2958	N.18 49 46.2	3.196
1	6 1 24.92	2.1988	19 21 41.3	1.744	1	7 49 42.10	2.2968	18 46 31.2	3.304
2	6 3 36.94	2.2018	19 23 23.0	1.646	2	7 51 59.94	2.2978	18 43 9.7	3.413
3	6 5 49.13	2.2046	19 24 58.8	1.548	3	7 54 17.83	2.2986	18 39 41.7	3.521
4	6 8 1.49	2.2075	19 26 28.8	1.451	4	7 56 35.77	2.2994	18 36 7.2	3.630
5	6 10 14.03	2.2104	19 27 52.9	1.352	5	7 58 53.76	2.3003	18 32 26.1	3.738
6	6 12 26.74	2.2132	19 29 11.0	1.252	6	8 1 11.80	2.3011	18 28 38.6	3.847
7	6 14 39.61	2.2160	19 30 23.1	1.152	7	8 3 29.89	2.3018	18 24 44.5	3.955
8	6 16 52.66	2.2188	19 31 29.2	1.052	8	8 5 48.01	2.3023	18 20 44.0	4.062
9	6 19 5.86	2.2214	19 32 29.4	0.952	9	8 8 6.16	2.3029	18 16 37.1	4.170
10	6 21 19.23	2.2242	19 33 23.4	0.850	10	8 10 24.36	2.3035	18 12 23.6	4.278
11	6 23 32.76	2.2268	19 34 11.4	0.749	11	8 12 42.58	2.3039	18 8 3.7	4.386
12	6 25 46.45	2.2295	19 34 53.3	0.647	12	8 15 0.83	2.3044	18 3 37.3	4.493
13	6 28 0.30	2.2321	19 35 29.1	0.545	13	8 17 19.11	2.3048	17 59 4.5	4.600
14	6 30 14.30	2.2346	19 35 58.7	0.443	14	8 19 37.41	2.3052	17 54 25.3	4.706
15	6 32 28.45	2.2371	19 36 22.2	0.340	15	8 21 55.73	2.3054	17 49 39.8	4.813
16	6 34 42.75	2.2396	19 36 39.5	0.236	16	8 24 14.06	2.3058	17 44 47.8	4.919
17	6 36 57.20	2.2420	19 36 50.5	0.132	17	8 26 32.42	2.3060	17 39 49.5	5.025
18	6 39 11.79	2.2444	19 36 55.3	0.028	18	8 28 50.78	2.3061	17 34 44.8	5.131
19	6 41 26.53	2.2468	19 36 53.9	0.076	19	8 31 9.15	2.3063	17 29 33.8	5.236
20	6 43 41.41	2.2491	19 36 46.2	0.181	20	8 33 27.54	2.3064	17 24 16.5	5.341
21	6 45 56.42	2.2513	19 36 32.2	0.286	21	8 35 45.92	2.3064	17 18 52.9	5.445
22	6 48 11.57	2.2537	19 36 11.9	0.391	22	8 38 4.31	2.3064	17 13 23.1	5.549
23	6 50 26.86	2.2558	N.19 35 45.3	0.497	23	8 40 22.69	2.3063	N.17 7 47.0	5.653
	TUESDAY 6.					THURSDAY 8.			
0	6 52 42.27	2.2579	N.19 35 12.3	0.603	0	8 42 41.07	2.3063	N.17 2 4.7	5.757
1	6 54 57.81	2.2601	19 34 33.0	0.708	1	8 44 59.45	2.3062	16 56 16.2	5.859
2	6 57 13.48	2.2622	19 33 47.3	0.815	2	8 47 17.82	2.3060	16 50 21.6	5.962
3	6 59 29.27	2.2642	19 32 55.2	0.922	3	8 49 36.17	2.3058	16 44 20.8	6.064
4	7 1 45.18	2.2662	19 31 56.7	1.028	4	8 51 54.52	2.3057	16 38 13.9	6.166
5	7 4 1.21	2.2682	19 30 51.8	1.136	5	8 54 12.85	2.3053	16 32 0.9	6.268
6	7 6 17.36	2.2700	19 29 40.4	1.243	6	8 56 31.16	2.3051	16 25 41.8	6.368
7	7 8 33.61	2.2718	19 28 22.6	1.350	7	8 58 49.46	2.3048	16 19 16.8	6.468
8	7 10 49.98	2.2737	19 26 58.4	1.458	8	9 1 7.73	2.3043	16 12 45.7	6.568
9	7 13 6.45	2.2753	19 25 27.7	1.566	9	9 3 25.98	2.3039	16 6 8.7	6.666
10	7 15 23.02	2.2771	19 23 50.5	1.674	10	9 5 44.20	2.3035	15 59 25.8	6.764
11	7 17 39.70	2.2788	19 22 6.8	1.782	11	9 8 2.40	2.3031	15 52 37.0	6.863
12	7 19 56.47	2.2803	19 20 16.7	1.890	12	9 10 20.57	2.3025	15 45 42.3	6.960
13	7 22 13.34	2.2819	19 18 20.0	1.998	13	9 12 38.70	2.3020	15 38 41.8	7.057
14	7 24 30.30	2.2834	19 16 16.9	2.107	14	9 14 56.81	2.3014	15 31 35.5	7.153
15	7 26 47.35	2.2848	19 14 7.2	2.216	15	9 17 14.87	2.3008	15 24 23.5	7.248
16	7 29 4.48	2.2863	19 11 51.0	2.325	16	9 19 32.90	2.3002	15 17 5.7	7.343
17	7 31 21.70	2.2877	19 9 28.2	2.433	17	9 21 50.89	2.2995	15 9 42.3	7.437
18	7 33 39.00	2.2890	19 6 59.0	2.542	18	9 24 8.84	2.2988	15 2 13.3	7.531
19	7 35 56.38	2.2903	19 4 23.2	2.651	19	9 26 26.75	2.2982	14 54 38.6	7.624
20	7 38 13.83	2.2914	19 1 40.9	2.760	20	9 28 44.62	2.2974	14 46 58.4	7.716
21	7 40 31.35	2.2926	18 58 52.0	2.869	21	9 31 2.44	2.2976	14 39 12.7	7.808
22	7 42 48.94	2.2938	18 55 56.6	2.978	22	9 33 20.21	2.2958	14 31 21.5	7.899
23	7 45 6.60	2.2948	18 52 54.7	3.087	23	9 35 37.94	2.2950	14 23 24.8	7.988
24	7 47 24.32	2.2958	N.18 49 46.2	3.196	24	9 37 55.61	2.2942	N.14 15 22.9	8.077

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 9.					SUNDAY 11.				
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	9 37 55.61	2.2942	N. 14 15 22.9	8.077	0	11 26 54.78	2.2477	N. 6 21 42.6	11.272
1	9 40 13.24	2.2933	14 7 15.6	8.166	1	11 29 9.62	2.2469	6 10 25.1	11.313
2	9 42 30.81	2.2925	13 59 3.0	8.253	2	11 31 24.41	2.2462	5 59 5.1	11.352
3	9 44 48.34	2.2917	13 50 45.2	8.341	3	11 33 39.16	2.2455	5 47 42.9	11.389
4	9 47 5.81	2.2907	13 42 22.1	8.428	4	11 35 53.87	2.2449	5 36 18.4	11.426
5	9 49 23.22	2.2897	13 33 53.9	8.513	5	11 38 8.55	2.2443	5 24 51.8	11.461
6	9 51 40.58	2.2888	13 25 20.6	8.597	6	11 40 23.18	2.2436	5 13 23.1	11.496
7	9 53 57.88	2.2879	13 16 42.3	8.680	7	11 42 37.78	2.2430	5 1 52.3	11.529
8	9 56 15.13	2.2869	13 7 59.0	8.763	8	11 44 52.34	2.2424	4 50 19.6	11.561
9	9 58 32.31	2.2859	12 59 10.7	8.846	9	11 47 6.87	2.2418	4 38 45.0	11.593
10	10 0 49.44	2.2850	12 50 17.5	8.927	10	11 49 21.36	2.2413	4 27 8.5	11.622
11	10 3 6.51	2.2839	12 41 19.5	9.007	11	11 51 35.83	2.2409	4 15 30.4	11.649
12	10 5 23.51	2.2829	12 32 16.7	9.086	12	11 53 50.27	2.2404	4 3 50.6	11.677
13	10 7 40.46	2.2819	12 23 9.2	9.165	13	11 56 4.68	2.2400	3 52 9.2	11.703
14	10 9 57.34	2.2808	12 13 56.9	9.243	14	11 58 19.07	2.2396	3 40 26.3	11.728
15	10 12 14.16	2.2798	12 4 40.1	9.318	15	12 0 33.43	2.2393	3 28 41.9	11.752
16	10 14 30.92	2.2788	11 55 18.7	9.394	16	12 2 47.78	2.2389	3 16 56.1	11.774
17	10 16 47.62	2.2778	11 45 52.8	9.469	17	12 5 2.10	2.2386	3 5 9.0	11.794
18	10 19 4.25	2.2767	11 36 22.4	9.543	18	12 7 16.41	2.2383	2 53 20.8	11.814
19	10 21 20.82	2.2757	11 26 47.6	9.616	19	12 9 30.70	2.2381	2 41 31.3	11.833
20	10 23 37.33	2.2746	11 17 8.5	9.688	20	12 11 44.98	2.2379	2 29 40.8	11.850
21	10 25 53.77	2.2735	11 7 25.1	9.759	21	12 13 59.25	2.2378	2 17 49.3	11.867
22	10 28 10.15	2.2724	10 57 37.4	9.829	22	12 16 13.51	2.2375	2 5 56.8	11.882
23	10 30 26.46	2.2713	N. 10 47 45.6	9.897	23	12 18 27.75	2.2374	N. 1 54 3.5	11.896
SATURDAY 10.					MONDAY 12.				
0	10 32 42.71	2.2703	N. 10 37 49.8	9.964	0	12 20 42.00	2.2374	N. 1 42 9.3	11.908
1	10 34 58.90	2.2693	10 27 49.9	10.032	1	12 22 56.24	2.2373	1 30 14.5	11.919
2	10 37 15.02	2.2682	10 17 46.0	10.098	2	12 25 10.48	2.2373	1 18 19.0	11.929
3	10 39 31.08	2.2672	10 7 38.1	10.163	3	12 27 24.72	2.2374	1 6 23.0	11.938
4	10 41 47.08	2.2662	9 57 26.5	10.226	4	12 29 38.97	2.2375	0 54 26.4	11.946
5	10 44 3.02	2.2651	9 47 11.0	10.289	5	12 31 53.22	2.2375	0 42 29.5	11.952
6	10 46 18.89	2.2640	9 36 51.8	10.351	6	12 34 7.47	2.2377	0 30 32.2	11.958
7	10 48 34.70	2.2631	9 26 28.9	10.412	7	12 36 21.74	2.2379	0 18 34.6	11.961
8	10 50 50.46	2.2621	9 16 2.4	10.471	8	12 38 36.02	2.2381	N. 0 6 36.9	11.963
9	10 53 6.15	2.2610	9 5 32.4	10.529	9	12 40 50.31	2.2383	S. 0 5 21.0	11.966
10	10 55 21.78	2.2600	8 54 58.9	10.587	10	12 43 4.61	2.2386	0 17 19.0	11.966
11	10 57 37.35	2.2590	8 44 22.0	10.643	11	12 45 18.94	2.2389	0 29 16.9	11.964
12	10 59 52.86	2.2581	8 33 41.7	10.698	12	12 47 33.28	2.2393	0 41 14.7	11.962
13	11 2 8.32	2.2571	8 22 58.2	10.752	13	12 49 47.65	2.2397	0 53 12.3	11.958
14	11 4 23.71	2.2561	8 12 11.5	10.805	14	12 52 2.04	2.2401	1 5 9.7	11.954
15	11 6 39.05	2.2553	8 1 21.6	10.857	15	12 54 16.46	2.2406	1 17 6.8	11.948
16	11 8 54.34	2.2544	7 50 28.7	10.908	16	12 56 30.91	2.2411	1 29 3.5	11.940
17	11 11 9.58	2.2535	7 39 32.7	10.958	17	12 58 45.39	2.2416	1 40 59.6	11.932
18	11 13 24.76	2.2526	7 28 33.8	11.005	18	13 0 59.90	2.2422	1 52 55.3	11.923
19	11 15 39.89	2.2517	7 17 32.1	11.053	19	13 3 14.45	2.2428	2 4 50.3	11.911
20	11 17 54.96	2.2508	7 6 27.5	11.099	20	13 5 29.04	2.2435	2 16 44.6	11.899
21	11 20 9.99	2.2501	6 55 20.2	11.144	21	13 7 43.67	2.2442	2 28 38.2	11.887
22	11 22 24.97	2.2493	6 44 10.2	11.188	22	13 9 58.34	2.2448	2 40 31.0	11.872
23	11 24 39.90	2.2484	6 32 57.7	11.230	23	13 12 13.05	2.2457	2 52 22.8	11.855
24	11 26 54.78	2.2477	N. 6 21 42.6	11.272	24	13 14 27.82	2.2465	S. 3 4 13.6	11.838

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 13.					THURSDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	13 14 27.82	2.2465	S. 3 4 13.6	11.838	0	15 3 52.34	2.3233	S. 11 50 2.8	9.625
1	13 16 42.63	2.2473	3 16 3.4	11.820	1	15 6 11.80	2.3255	11 59 38.1	9.552
2	13 18 57.50	2.2482	3 27 52.0	11.800	2	15 8 31.40	2.3277	12 9 9.0	9.477
3	13 21 12.41	2.2491	3 39 39.4	11.779	3	15 10 51.12	2.3298	12 18 35.3	9.401
4	13 23 27.39	2.2501	3 51 25.5	11.758	4	15 13 10.98	2.3321	12 27 57.1	9.324
5	13 25 42.42	2.2510	4 3 10.3	11.734	5	15 15 30.97	2.3343	12 37 14.2	9.246
6	13 27 57.51	2.2521	4 14 53.6	11.710	6	15 17 51.09	2.3365	12 46 26.6	9.167
7	13 30 12.67	2.2532	4 26 35.5	11.685	7	15 20 11.35	2.3388	12 55 34.2	9.088
8	13 32 27.89	2.2542	4 38 15.8	11.658	8	15 22 31.74	2.3410	13 4 37.1	9.007
9	13 34 43.17	2.2553	4 49 54.4	11.630	9	15 24 52.27	2.3433	13 13 35.0	8.924
10	13 36 58.53	2.2566	5 1 31.4	11.601	10	15 27 12.93	2.3454	13 22 28.0	8.842
11	13 39 13.96	2.2578	5 13 6.5	11.570	11	15 29 33.72	2.3477	13 31 16.0	8.758
12	13 41 29.46	2.2590	5 24 39.8	11.539	12	15 31 54.66	2.3500	13 39 58.9	8.673
13	13 43 45.04	2.2603	5 36 11.2	11.506	13	15 34 15.72	2.3522	13 48 36.7	8.587
14	13 46 0.69	2.2616	5 47 40.5	11.472	14	15 36 36.91	2.3543	13 57 9.3	8.500
15	13 48 16.43	2.2629	5 59 7.8	11.437	15	15 38 58.24	2.3567	14 5 36.7	8.413
16	13 50 32.24	2.2643	6 10 32.9	11.399	16	15 41 19.71	2.3589	14 13 58.8	8.324
17	13 52 48.14	2.2658	6 21 55.7	11.362	17	15 43 41.31	2.3611	14 22 15.6	8.234
18	13 55 4.13	2.2672	6 33 16.3	11.324	18	15 46 3.04	2.3633	14 30 26.9	8.143
19	13 57 20.20	2.2687	6 44 34.6	11.284	19	15 48 24.91	2.3655	14 38 32.8	8.053
20	13 59 36.37	2.2703	6 55 50.4	11.243	20	15 50 46.90	2.3677	14 46 33.2	7.960
21	14 1 52.63	2.2718	7 7 3.7	11.200	21	15 53 9.03	2.3699	14 54 28.0	7.866
22	14 4 8.98	2.2733	7 18 14.4	11.157	22	15 55 31.29	2.3721	15 2 17.1	7.772
23	14 6 25.42	2.2748	S. 7 29 22.5	11.113	23	15 57 53.68	2.3742	S. 15 10 0.6	7.677
	WEDNESDAY 14.					FRIDAY 16.			
0	14 8 41.96	2.2765	S. 7 40 27.9	11.067	0	16 0 16.19	2.3763	S. 15 17 38.3	7.581
1	14 10 58.60	2.2783	7 51 30.5	11.019	1	16 2 38.84	2.3785	15 25 10.3	7.484
2	14 13 15.35	2.2799	8 2 30.2	10.970	2	16 5 1.61	2.3806	15 32 36.4	7.387
3	14 15 32.19	2.2816	8 13 26.9	10.921	3	16 7 24.51	2.3828	15 39 56.7	7.288
4	14 17 49.14	2.2834	8 24 20.7	10.871	4	16 9 47.54	2.3848	15 47 11.0	7.189
5	14 20 6.20	2.2852	8 35 11.4	10.819	5	16 12 10.69	2.3868	15 54 19.4	7.089
6	14 22 23.36	2.2870	8 45 59.0	10.767	6	16 14 33.96	2.3889	16 1 21.7	6.988
7	14 24 40.64	2.2888	8 56 43.4	10.713	7	16 16 57.36	2.3909	16 8 17.9	6.887
8	14 26 58.02	2.2907	9 7 24.5	10.658	8	16 19 20.87	2.3929	16 15 8.1	6.784
9	14 29 15.52	2.2926	9 18 2.3	10.602	9	16 21 44.51	2.3949	16 21 52.0	6.680
10	14 31 33.13	2.2945	9 28 36.7	10.544	10	16 24 8.26	2.3968	16 28 29.7	6.577
11	14 33 50.86	2.2964	9 39 7.6	10.486	11	16 26 32.13	2.3988	16 35 1.2	6.473
12	14 36 8.70	2.2983	9 49 35.0	10.426	12	16 28 56.11	2.4007	16 41 26.4	6.367
13	14 38 26.66	2.3003	9 59 58.7	10.365	13	16 31 20.21	2.4025	16 47 45.2	6.260
14	14 40 44.74	2.3023	10 10 18.8	10.303	14	16 33 44.41	2.4043	16 53 57.6	6.153
15	14 43 2.94	2.3043	10 20 35.1	10.240	15	16 36 8.73	2.4062	17 0 3.5	6.045
16	14 45 21.26	2.3063	10 30 47.6	10.176	16	16 38 33.15	2.4078	17 6 3.0	5.938
17	14 47 39.70	2.3084	10 40 56.2	10.111	17	16 40 57.67	2.4096	17 11 56.0	5.828
18	14 49 58.27	2.3105	10 51 0.9	10.045	18	16 43 22.30	2.4113	17 17 42.3	5.718
19	14 52 16.96	2.3126	11 1 1.6	9.978	19	16 45 47.03	2.4129	17 23 22.1	5.608
20	14 54 35.78	2.3148	11 10 58.3	9.909	20	16 48 11.85	2.4145	17 28 55.3	5.498
21	14 56 54.73	2.3168	11 20 50.7	9.839	21	16 50 36.77	2.4162	17 34 21.8	5.386
22	14 59 13.80	2.3189	11 30 39.0	9.770	22	16 53 1.79	2.4177	17 39 41.6	5.273
23	15 1 33.00	2.3212	11 40 23.1	9.698	23	16 55 26.89	2.4191	17 44 54.6	5.160
24	15 3 52.34	2.3233	S. 11 50 2.8	9.625	24	16 57 52.08	2.4206	S. 17 50 0.8	5.047

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute
	SATURDAY 17.					MONDAY 19.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	16 57 52.08	2.4206	S. 17 50 0.8	5.047	0	18 54 40.94	2.4225	S. 19 34 41.4	0.746
1	17 0 17.36	2.4220	17 55 0.2	4.933	1	18 57 6.25	2.4209	19 33 53.0	0.867
2	17 2 42.72	2.4233	17 59 52.8	4.819	2	18 59 31.45	2.4193	19 32 57.4	0.987
3	17 5 8.16	2.4247	18 4 38.5	4.704	3	19 1 56.56	2.4177	19 31 54.6	1.108
4	17 7 33.68	2.4259	18 9 17.3	4.588	4	19 4 21.57	2.4159	19 30 44.5	1.228
5	17 9 59.27	2.4272	18 13 49.1	4.473	5	19 6 46.47	2.4140	19 29 27.3	1.346
6	17 12 24.94	2.4283	18 18 14.0	4.357	6	19 9 11.25	2.4121	19 28 3.0	1.466
7	17 14 50.67	2.4294	18 22 31.9	4.239	7	19 11 35.92	2.4103	19 26 31.4	1.585
8	17 17 16.47	2.4305	18 26 42.7	4.122	8	19 14 0.48	2.4083	19 24 52.8	1.703
9	17 19 42.33	2.4314	18 30 46.5	4.004	9	19 16 24.91	2.4061	19 23 7.1	1.821
10	17 22 8.24	2.4324	18 34 43.2	3.886	10	19 18 49.21	2.4039	19 21 14.3	1.939
11	17 24 34.22	2.4334	18 38 32.8	3.767	11	19 21 13.38	2.4017	19 19 14.4	2.056
12	17 27 0.25	2.4343	18 42 15.2	3.648	12	19 23 37.41	2.3994	19 17 7.6	2.172
13	17 29 26.33	2.4350	18 45 50.5	3.528	13	19 26 1.31	2.3971	19 14 53.8	2.288
14	17 31 52.45	2.4357	18 49 18.6	3.409	14	19 28 25.06	2.3947	19 12 33.0	2.404
15	17 34 18.61	2.4363	18 52 39.6	3.289	15	19 30 48.67	2.3923	19 10 5.3	2.519
16	17 36 44.81	2.4370	18 55 53.3	3.168	16	19 33 12.13	2.3898	19 7 30.7	2.634
17	17 39 11.05	2.4376	18 58 59.8	3.048	17	19 35 35.44	2.3872	19 4 49.2	2.748
18	17 41 37.32	2.4381	19 1 59.0	2.927	18	19 37 58.59	2.3846	19 2 0.9	2.862
19	17 44 3.62	2.4385	19 4 51.0	2.806	19	19 40 21.59	2.3819	18 59 5.8	2.974
20	17 46 29.94	2.4388	19 7 35.7	2.683	20	19 42 44.42	2.3791	18 56 4.0	3.087
21	17 48 56.28	2.4392	19 10 13.0	2.562	21	19 45 7.08	2.3763	18 52 55.4	3.198
22	17 51 22.64	2.4394	19 12 43.1	2.441	22	19 47 29.57	2.3735	18 49 40.2	3.309
23	17 53 49.01	2.4396	S. 19 15 5.9	2.318	23	19 49 51.90	2.3706	S. 18 46 18.3	3.420
	SUNDAY 18.					TUESDAY 20.			
0	17 56 15.39	2.4397	S. 19 17 21.3	2.196	0	19 52 14.04	2.3676	S. 18 42 49.8	3.530
1	17 58 41.78	2.4398	19 19 29.4	2.073	1	19 54 36.01	2.3647	18 39 14.7	3.639
2	18 1 8.17	2.4398	19 21 30.1	1.951	2	19 56 57.80	2.3616	18 35 33.1	3.748
3	18 3 34.55	2.4397	19 23 23.5	1.828	3	19 59 19.40	2.3584	18 31 45.0	3.856
4	18 6 0.93	2.4396	19 25 9.5	1.705	4	20 1 40.81	2.3553	18 27 50.4	3.963
5	18 8 27.30	2.4394	19 26 48.1	1.582	5	20 4 2.04	2.3522	18 23 49.4	4.070
6	18 10 53.66	2.4391	19 28 19.3	1.459	6	20 6 23.07	2.3488	18 19 42.0	4.176
7	18 13 19.99	2.4387	19 29 43.2	1.337	7	20 8 43.90	2.3456	18 15 28.3	4.280
8	18 15 46.31	2.4384	19 30 59.7	1.213	8	20 11 4.54	2.3423	18 11 8.4	4.384
9	18 18 12.60	2.4379	19 32 8.8	1.090	9	20 13 24.97	2.3388	18 6 42.2	4.488
10	18 20 38.86	2.4373	19 33 10.5	0.968	10	20 15 45.20	2.3355	18 2 9.8	4.592
11	18 23 5.08	2.4367	19 34 4.9	0.844	11	20 18 5.23	2.3320	17 57 31.2	4.694
12	18 25 31.26	2.4360	19 34 51.8	0.721	12	20 20 25.04	2.3285	17 52 46.5	4.795
13	18 27 57.40	2.4353	19 35 31.4	0.598	13	20 22 44.65	2.3250	17 47 55.8	4.895
14	18 30 23.49	2.4344	19 36 3.5	0.474	14	20 25 4.04	2.3214	17 42 59.1	4.995
15	18 32 49.53	2.4336	19 36 28.3	0.352	15	20 27 23.22	2.3178	17 37 56.4	5.093
16	18 35 15.52	2.4327	19 36 45.8	0.230	16	20 29 42.18	2.3142	17 32 47.9	5.192
17	18 37 41.45	2.4316	19 36 55.9	0.107	17	20 32 0.92	2.3105	17 27 33.4	5.289
18	18 40 7.31	2.4305	19 36 58.6	0.016	18	20 34 19.44	2.3068	17 22 13.2	5.385
19	18 42 33.11	2.4294	19 36 54.0	0.138	19	20 36 37.74	2.3031	17 16 47.2	5.480
20	18 44 58.84	2.4282	19 36 42.1	0.260	20	20 38 55.81	2.2993	17 11 15.6	5.575
21	18 47 24.49	2.4268	19 36 22.8	0.382	21	20 41 13.66	2.2956	17 5 38.2	5.669
22	18 49 50.06	2.4255	19 35 56.3	0.503	22	20 43 31.28	2.2918	16 59 55.3	5.762
23	18 52 15.55	2.4240	19 35 22.5	0.624	23	20 45 48.67	2.2878	16 54 6.8	5.853
24	18 54 40.94	2.4225	S. 19 34 41.4	0.746	24	20 48 5.82	2.2840	S. 16 48 12.9	5.944

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 21.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	20 48 5.82	2.2840	S. 16 48 12.9	5.944
1	20 50 22.75	2.2802	16 42 13.5	6.035
2	20 52 39.44	2.2762	16 36 8.7	6.124
3	20 54 55.89	2.2723	16 29 58.6	6.213
4	20 57 12.11	2.2683	16 23 43.2	6.300
5	20 59 28.09	2.2644	16 17 22.6	6.387
6	21 1 43.84	2.2604	16 10 56.8	6.473
7	21 3 59.34	2.2563	16 4 25.9	6.557
8	21 6 14.60	2.2523	15 57 50.0	6.641
9	21 8 29.62	2.2483	15 51 9.0	6.724
10	21 10 44.39	2.2443	15 44 23.1	6.806
11	21 12 58.93	2.2403	15 37 32.3	6.887
12	21 15 13.22	2.2361	15 30 36.7	6.967
13	21 17 27.26	2.2320	15 23 36.3	7.046
14	21 19 41.06	2.2280	15 16 31.2	7.124
15	21 21 54.62	2.2238	15 9 21.4	7.202
16	21 24 7.92	2.2197	15 2 7.0	7.278
17	21 26 20.98	2.2157	14 54 48.0	7.353
18	21 28 33.80	2.2115	14 47 24.6	7.427
19	21 30 46.36	2.2073	14 39 56.7	7.501
20	21 32 58.68	2.2033	14 32 24.5	7.573
21	21 35 10.75	2.1992	14 24 47.9	7.644
22	21 37 22.58	2.1950	14 17 7.2	7.714
23	21 39 34.15	2.1908	S. 14 9 22.2	7.784

THURSDAY 22.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	21 41 45.48	2.1868	S. 14 1 33.1	7.853
1	21 43 56.56	2.1827	13 53 39.9	7.920
2	21 46 7.40	2.1786	13 45 42.7	7.986
3	21 48 17.99	2.1745	13 37 41.6	8.051
4	21 50 28.34	2.1704	13 29 36.6	8.116
5	21 52 38.44	2.1663	13 21 27.7	8.179
6	21 54 48.29	2.1622	13 13 15.1	8.241
7	21 56 57.90	2.1582	13 4 58.8	8.303
8	21 59 7.27	2.1541	12 56 38.7	8.364
9	22 1 16.39	2.1500	12 48 15.1	8.423
10	22 3 25.27	2.1460	12 39 48.0	8.482
11	22 5 33.91	2.1420	12 31 17.3	8.539
12	22 7 42.31	2.1380	12 22 43.3	8.595
13	22 9 50.47	2.1340	12 14 5.9	8.651
14	22 11 58.39	2.1300	12 5 25.2	8.706
15	22 14 6.07	2.1260	11 56 41.2	8.760
16	22 16 13.51	2.1220	11 47 54.0	8.813
17	22 18 20.71	2.1181	11 39 3.7	8.863
18	22 20 27.68	2.1143	11 30 10.4	8.914
19	22 22 34.42	2.1103	11 21 14.0	8.965
20	22 24 40.92	2.1065	11 12 14.6	9.013
21	22 26 47.20	2.1027	11 3 12.4	9.061
22	22 28 53.24	2.0988	10 54 7.3	9.108
23	22 30 59.05	2.0949	10 44 59.4	9.154
24	22 33 4.63	2.0912	S. 10 35 48.8	9.199

FRIDAY 23.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	22 33 4.63	2.0912	S. 10 35 48.8	9.199
1	22 35 9.99	2.0874	10 26 35.5	9.243
2	22 37 15.12	2.0837	10 17 19.6	9.286
3	22 39 20.03	2.0800	10 8 1.2	9.328
4	22 41 24.72	2.0763	9 58 40.3	9.369
5	22 43 29.18	2.0726	9 49 16.9	9.410
6	22 45 33.43	2.0690	9 39 51.1	9.449
7	22 47 37.46	2.0654	9 30 23.0	9.487
8	22 49 41.28	2.0618	9 20 52.7	9.524
9	22 51 44.88	2.0583	9 11 20.1	9.561
10	22 53 48.27	2.0548	9 1 45.4	9.597
11	22 55 51.45	2.0513	8 52 8.5	9.632
12	22 57 54.42	2.0478	8 42 29.6	9.665
13	22 59 57.18	2.0443	8 32 48.7	9.698
14	23 1 59.74	2.0410	8 23 5.9	9.729
15	23 4 2.10	2.0377	8 13 21.2	9.761
16	23 6 4.26	2.0343	8 3 34.6	9.791
17	23 8 6.22	2.0310	7 53 46.3	9.819
18	23 10 7.98	2.0278	7 43 56.3	9.848
19	23 12 9.55	2.0246	7 34 4.5	9.876
20	23 14 10.93	2.0213	7 24 11.2	9.902
21	23 16 12.11	2.0182	7 14 16.3	9.928
22	23 18 13.11	2.0151	7 4 19.8	9.954
23	23 20 13.92	2.0120	S. 6 54 21.8	9.978

SATURDAY 24.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	23 22 14.55	2.0089	S. 6 44 22.5	10.000
1	23 24 14.99	2.0059	6 34 21.8	10.022
2	23 26 15.26	2.0030	6 24 19.8	10.043
3	23 28 15.35	2.0000	6 14 16.6	10.064
4	23 30 15.26	1.9971	6 4 12.1	10.084
5	23 32 15.00	1.9943	5 54 6.5	10.103
6	23 34 14.57	1.9914	5 43 59.8	10.121
7	23 36 13.97	1.9886	5 33 52.0	10.138
8	23 38 13.20	1.9858	5 23 43.2	10.155
9	23 40 12.27	1.9832	5 13 33.4	10.170
10	23 42 11.18	1.9805	5 3 22.8	10.184
11	23 44 9.93	1.9778	4 53 11.3	10.199
12	23 46 8.52	1.9753	4 42 58.9	10.213
13	23 48 6.96	1.9728	4 32 45.8	10.224
14	23 50 5.25	1.9702	4 22 32.0	10.236
15	23 52 3.38	1.9677	4 12 17.5	10.247
16	23 54 1.37	1.9653	4 2 2.4	10.257
17	23 55 59.22	1.9629	3 51 46.7	10.266
18	23 57 56.92	1.9605	3 41 30.5	10.275
19	23 59 54.48	1.9583	3 31 13.7	10.282
20	0 1 51.91	1.9560	3 20 56.6	10.288
21	0 3 49.20	1.9538	3 10 39.1	10.295
22	0 5 46.36	1.9516	3 0 21.2	10.301
23	0 7 43.39	1.9494	2 50 3.0	10.305
24	0 9 40.29	1.9473	S. 2 39 44.6	10.308

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 25.					TUESDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	0 9 40.29	1.9473	S. 2 39 44.6	10.308	0	1 41 33.42	1.8981	N. 5 26 30.8	9.706
1	0 11 37.07	1.9453	2 29 26.0	10.312	1	1 43 27.31	1.8982	5 36 12.3	9.678
2	0 13 33.73	1.9433	2 19 7.1	10.315	2	1 45 21.20	1.8983	5 45 52.2	9.651
3	0 15 30.26	1.9413	2 8 48.2	10.316	3	1 47 15.10	1.8984	5 55 30.4	9.622
4	0 17 26.68	1.9394	1 58 29.2	10.318	4	1 49 9.01	1.8986	6 5 6.8	9.593
5	0 19 22.99	1.9376	1 48 10.1	10.318	5	1 51 2.93	1.8988	6 14 41.5	9.563
6	0 21 19.19	1.9357	1 37 51.0	10.317	6	1 52 56.86	1.8990	6 24 14.3	9.533
7	0 23 15.27	1.9338	1 27 32.0	10.316	7	1 54 50.81	1.8993	6 33 45.4	9.502
8	0 25 11.25	1.9322	1 17 13.1	10.314	8	1 56 44.78	1.8997	6 43 14.5	9.470
9	0 27 7.13	1.9304	1 6 54.3	10.312	9	1 58 38.77	1.9001	6 52 41.8	9.438
10	0 29 2.90	1.9287	0 56 35.7	10.308	10	2 0 32.79	1.9006	7 2 7.1	9.405
11	0 30 58.58	1.9271	0 46 17.3	10.305	11	2 2 26.84	1.9010	7 11 30.4	9.373
12	0 32 54.15	1.9255	0 35 59.1	10.300	12	2 4 20.91	1.9015	7 20 51.8	9.339
13	0 34 49.64	1.9240	0 25 41.3	10.294	13	2 6 15.02	1.9021	7 30 11.1	9.305
14	0 36 45.03	1.9225	0 15 23.8	10.288	14	2 8 9.16	1.9027	7 39 28.4	9.270
15	0 38 40.34	1.9211	S. 0 5 6.7	10.282	15	2 10 3.34	1.9033	7 48 43.5	9.235
16	0 40 35.56	1.9197	N. 0 5 10.0	10.275	16	2 11 57.55	1.9039	7 57 56.6	9.200
17	0 42 30.70	1.9183	0 15 26.3	10.267	17	2 13 51.81	1.9047	8 7 7.5	9.163
18	0 44 25.75	1.9169	0 25 42.0	10.257	18	2 15 46.12	1.9055	8 16 16.1	9.126
19	0 46 20.73	1.9157	0 35 57.1	10.248	19	2 17 40.47	1.9063	8 25 22.6	9.089
20	0 48 15.64	1.9145	0 46 11.7	10.238	20	2 19 34.87	1.9071	8 34 26.8	9.051
21	0 50 10.47	1.9133	0 56 25.7	10.228	21	2 21 29.32	1.9079	8 43 28.7	9.013
22	0 52 5.24	1.9123	1 6 39.0	10.216	22	2 23 23.82	1.9088	8 52 28.3	8.973
23	0 53 59.94	1.9111	N. 1 16 51.6	10.204	23	2 25 18.38	1.9098	N. 9 1 25.5	8.934
	MONDAY 26.					WEDNESDAY 28.			
0	0 55 54.57	1.9100	N. 1 27 3.5	10.192	0	2 27 13.00	1.9108	N. 9 10 20.4	8.895
1	0 57 49.14	1.9091	1 37 14.6	10.178	1	2 29 7.68	1.9118	9 19 12.9	8.854
2	0 59 43.66	1.9081	1 47 24.9	10.164	2	2 31 2.42	1.9129	9 28 2.9	8.813
3	1 1 38.11	1.9072	1 57 34.3	10.149	3	2 32 57.23	1.9141	9 36 50.4	8.771
4	1 3 32.52	1.9063	2 7 42.8	10.135	4	2 34 52.11	1.9153	9 45 35.4	8.729
5	1 5 26.87	1.9054	2 17 50.5	10.119	5	2 36 47.06	1.9164	9 54 17.9	8.687
6	1 7 21.17	1.9047	2 27 57.1	10.103	6	2 38 42.08	1.9176	10 2 57.8	8.643
7	1 9 15.43	1.9040	2 38 2.8	10.086	7	2 40 37.17	1.9189	10 11 35.1	8.600
8	1 11 9.65	1.9033	2 48 7.4	10.068	8	2 42 32.35	1.9203	10 20 9.8	8.557
9	1 13 3.83	1.9026	2 58 10.9	10.050	9	2 44 27.60	1.9215	10 28 41.9	8.512
10	1 14 57.96	1.9020	3 8 13.4	10.032	10	2 46 22.93	1.9229	10 37 11.2	8.466
11	1 16 52.07	1.9015	3 18 14.7	10.011	11	2 48 18.35	1.9243	10 45 37.8	8.421
12	1 18 46.14	1.9009	3 28 14.7	9.991	12	2 50 13.85	1.9258	10 54 1.7	8.375
13	1 20 40.18	1.9005	3 38 13.6	9.971	13	2 52 9.44	1.9273	11 2 22.8	8.328
14	1 22 34.20	1.9001	3 48 11.2	9.949	14	2 54 5.12	1.9288	11 10 41.0	8.280
15	1 24 28.19	1.8997	3 58 7.5	9.928	15	2 56 0.90	1.9303	11 18 56.4	8.233
16	1 26 22.16	1.8993	4 8 2.5	9.906	16	2 57 56.76	1.9319	11 27 8.9	8.184
17	1 28 16.10	1.8990	4 17 56.2	9.883	17	2 59 52.73	1.9336	11 35 18.5	8.136
18	1 30 10.04	1.8988	4 27 48.4	9.859	18	3 1 48.79	1.9353	11 43 25.2	8.087
19	1 32 3.96	1.8985	4 37 39.3	9.835	19	3 3 44.96	1.9370	11 51 28.9	8.037
20	1 33 57.86	1.8983	4 47 28.6	9.811	20	3 5 41.23	1.9387	11 59 29.6	7.986
21	1 35 51.76	1.8983	4 57 16.5	9.785	21	3 7 37.60	1.9404	12 7 27.2	7.935
22	1 37 45.65	1.8982	5 7 2.8	9.759	22	3 9 34.08	1.9423	12 15 21.8	7.883
23	1 39 39.54	1.8981	5 16 47.6	9.733	23	3 11 30.67	1.9441	12 23 13.2	7.832
24	1 41 33.42	1.8981	N. 5 26 30.8	9.706	24	3 13 27.37	1.9460	N. 12 31 1.6	7.780

GREENWICH MEAN TIME.

PHASES OF THE MOON.

		d	h	m
☽ First Quarter	Feb.	1	0	30.9
○ Full Moon		8	19	45.7
☾ Last Quarter		15	16	22.5
● New Moon		22	19	57.2

		d	h
☾ Apogee	Feb.	1	1.1
☾ Perigee		13	10.2
☾ Apogee		28	21.7

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	89 46 6	3465	91 7 9	3464	92 28 14	3463	93 49 19	3462
	Saturn	W.	68 50 44	3119	70 18 31	3119	71 46 18	3118	73 14 6	3116
	α Pegasi	W.	54 25 18	3588	55 44 6	3570	57 3 13	3553	58 22 39	3537
	Mars	W.	44 19 22	3369	45 42 14	3369	47 5 6	3368	48 27 59	3366
	Aldebaran	E.	26 50 51	3076	25 22 12	3076	23 53 33	3076	22 24 54	3074
	Pollux	E.	71 16 23	3139	69 49 1	3140	68 21 40	3141	66 54 20	3141
	Regulus	E.	106 59 11	3076	105 30 32	3075	104 1 52	3075	102 33 12	3074
2	Sun	W.	100 35 24	3446	101 56 49	3441	103 18 19	3436	104 39 55	3430
	α Pegasi	W.	65 4 4	3464	66 25 9	3450	67 46 29	3437	69 8 3	3424
	Mars	W.	55 23 8	3350	56 46 22	3345	58 9 42	3340	59 33 7	3334
	Pollux	E.	59 37 34	3136	58 10 8	3135	56 42 41	3133	55 15 11	3130
	Regulus	E.	95 9 12	3059	93 40 12	3055	92 11 8	3050	90 41 57	3045
3	Sun	W.	111 29 44	3394	112 52 7	3386	114 14 40	3376	115 37 24	3366
	α Pegasi	W.	75 59 29	3363	77 22 28	3351	78 45 41	3339	80 9 8	3327
	Mars	W.	66 32 4	3298	67 56 18	3290	69 20 41	3281	70 45 15	3271
	α Arietis	W.	32 35 56	3566	33 55 8	3516	35 15 15	3471	36 36 12	3429
	Pollux	E.	47 56 58	3118	46 29 10	3115	45 1 19	3113	43 33 25	3111
	Regulus	E.	83 14 15	3012	81 44 17	3004	80 14 9	2996	78 43 51	2987
4	Sun	W.	122 33 58	3313	123 57 54	3301	125 22 5	3288	126 46 30	3276
	α Pegasi	W.	87 9 45	3269	88 34 33	3258	89 59 34	3247	91 24 48	3235
	Mars	W.	77 50 57	3219	79 16 44	3207	80 42 45	3196	82 8 59	3183
	α Arietis	W.	43 31 36	3263	44 56 31	3235	46 21 59	3208	47 47 59	3183
	Jupiter	W.	21 2 32	3055	22 31 37	3032	24 1 10	3011	25 31 9	2991
	Pollux	E.	36 13 31	3110	34 45 33	3113	33 17 39	3117	31 49 50	3124
	Regulus	E.	71 9 26	2938	69 37 55	2928	68 6 11	2916	66 34 12	2904
5	α Pegasi	W.	98 34 12	3183	100 0 41	3173	101 27 22	3164	102 54 14	3155
	Mars	W.	89 23 59	3118	90 51 47	3105	92 19 51	3090	93 48 13	3076
	α Arietis	W.	55 5 11	3068	56 34 0	3047	58 3 14	3027	59 32 53	3007
	Jupiter	W.	33 6 54	2904	34 39 8	2888	36 11 42	2872	37 44 37	2856
	Aldebaran	W.	21 18 22	2844	22 51 53	2831	24 25 41	2817	25 59 47	2804
	Pollux	E.	24 34 4	3214	23 8 11	3251	21 43 2	3300	20 18 50	3365
	Regulus	E.	58 50 29	2843	57 16 57	2830	55 43 8	2816	54 9 1	2803
	Spica	E.	112 28 45	2877	110 55 57	2863	109 22 51	2850	107 49 28	2835
6	Mars	W.	101 14 24	3004	102 44 32	2989	104 14 59	2974	105 45 44	2959
	α Arietis	W.	67 7 14	2913	68 39 17	2895	70 11 42	2877	71 44 30	2860
	Jupiter	W.	45 34 14	2779	47 9 10	2763	48 44 26	2749	50 20 1	2733
	Aldebaran	W.	33 54 42	2735	35 30 35	2721	37 6 47	2707	38 43 18	2693
	Regulus	E.	46 14 4	2735	44 38 10	2721	43 1 58	2707	41 25 27	2693
	Spica	E.	99 57 57	2765	98 22 43	2751	96 47 11	2736	95 11 19	2722

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	**Sun**	W.	95 10 26	3459	96 31 36	3457	97 52 48	3454	99 14 4	3450
	Saturn	W.	74 41 56	3114	76 9 48	3112	77 37 43	3109	79 5 41	3105
	α Pegasi	W.	59 42 22	3521	61 2 23	3506	62 22 41	3491	63 43 15	3478
	Mars	W.	49 50 55	3364	51 13 53	3361	52 36 54	3358	53 59 59	3354
	Aldebaran	E.	20 56 12	3073	19 27 29	3070	17 58 43	3068	16 29 54	3065
	Pollux	E.	65 27 0	3141	63 59 40	3140	62 32 19	3139	61 4 57	3138
	Regulus	E.	101 4 30	3071	99 35 45	3069	98 6 58	3066	96 38 7	3063
2	**Sun**	W.	106 1 37	3423	107 23 27	3417	108 45 24	3410	110 7 29	3402
	α Pegasi	W.	70 29 52	3412	71 51 55	3399	73 14 13	3387	74 36 44	3375
	Mars	W.	60 56 39	3328	62 20 18	3321	63 44 5	3314	65 8 0	3307
	Pollux	E.	53 47 38	3128	52 20 3	3126	50 52 25	3123	49 24 43	3120
	Regulus	E.	89 12 40	3039	87 43 16	3033	86 13 44	3026	84 44 4	3019
3	**Sun**	W.	117 0 19	3357	118 23 25	3346	119 46 44	3336	121 10 14	3324
	α Pegasi	W.	81 32 48	3315	82 56 42	3303	84 20 50	3292	85 45 11	3281
	Mars	W.	72 10 0	3262	73 34 56	3252	75 0 4	3242	76 25 24	3231
	α Arietis	W.	37 57 56	3391	39 20 23	3356	40 43 30	3323	42 7 15	3292
	Pollux	E.	42 5 29	3109	40 37 31	3108	39 9 31	3108	37 41 31	3108
	Regulus	E.	77 13 22	2978	75 42 41	2969	74 11 49	2958	72 40 44	2948
4	**Sun**	W.	128 11 10	3264	129 36 4	3250	131 1 14	3237	132 26 40	3223
	α Pegasi	W.	92 50 16	3225	94 15 56	3214	95 41 49	3204	97 7 54	3193
	Mars	W.	83 35 28	3170	85 2 13	3158	86 29 12	3144	87 56 28	3132
	α Arietis	W.	49 14 28	3158	50 41 27	3134	52 8 55	3112	53 36 50	3091
	Jupiter	W.	27 1 33	2973	28 32 20	2955	30 3 30	2938	31 35 1	2920
	Pollux	E.	30 22 9	3133	28 54 39	3146	27 27 25	3163	26 0 31	3185
	Regulus	E.	65 1 58	2892	63 29 29	2880	61 56 45	2868	60 23 45	2856
5	α Pegasi	W.	104 21 17	3147	105 48 30	3138	107 15 53	3131	108 43 25	3124
	Mars	W.	95 16 52	3062	96 45 48	3048	98 15 2	3033	99 44 34	3018
	α Arietis	W.	61 2 57	2988	62 33 25	2968	64 4 18	2950	65 35 34	2931
	Jupiter	W.	39 17 52	2841	40 51 27	2825	42 25 23	2810	43 59 38	2794
	Aldebaran	W.	27 34 10	2790	29 8 51	2776	30 43 50	2763	32 19 6	2748
	Pollux	E.	18 55 54	3449	17 34 33	3562	16 15 17	3714	14 58 45	3923
	Regulus	E.	52 34 37	2790	50 59 56	2776	49 24 57	2762	47 49 40	2748
	Spica	E.	106 15 46	2822	104 41 47	2808	103 7 29	2793	101 32 52	2779
6	**Mars**	W.	107 16 48	2944	108 48 11	2930	110 19 52	2916	111 51 51	2900
	α Arietis	W.	73 17 40	2843	74 51 12	2827	76 25 5	2811	77 59 19	2795
	Jupiter	W.	51 55 57	2719	53 32 12	2703	55 8 48	2689	56 45 43	2675
	Aldebaran	W.	40 20 8	2679	41 57 16	2664	43 34 44	2651	45 12 30	2636
	Regulus	E.	39 48 37	2678	38 11 28	2664	36 34 0	2650	34 56 13	2637
	Spica	E.	93 35 9	2708	91 58 40	2694	90 21 52	2680	88 44 45	2666

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
7	α Arietis	W.	79 33 54	2779	81 8 50	2764	82 44 5	2748	84 19 41	2734
	JUPITER	W.	58 22 57	2660	60 0 31	2645	61 38 25	2632	63 16 37	2617
	Aldebaran	W.	46 50 36	2623	48 29 0	2609	50 7 43	2595	51 46 45	2581
	Regulus	E.	33 18 8	2622	31 39 43	2609	30 1 0	2595	28 21 58	2581
	Spica	E.	87 7 20	2652	85 29 36	2638	83 51 33	2625	82 13 12	2611
8	α Arietis	W.	92 22 16	2668	93 59 39	2655	95 37 19	2644	97 15 14	2633
	JUPITER	W.	71 32 24	2549	73 12 29	2537	74 52 51	2524	76 33 31	2512
	Aldebaran	W.	60 6 34	2515	61 47 26	2502	63 28 36	2490	65 10 3	2478
	Pollux	W.	18 20 46	3113	19 48 40	3010	21 18 41	2926	22 50 27	2856
	Spica	E.	73 56 56	2548	72 16 49	2535	70 36 25	2524	68 55 45	2512
9	JUPITER	W.	85 0 59	2455	86 43 15	2444	88 25 47	2434	90 8 33	2424
	Aldebaran	W.	73 41 28	2421	75 24 33	2411	77 7 52	2401	78 51 26	2391
	Pollux	W.	30 47 45	2634	32 25 54	2604	34 4 43	2577	35 44 9	2553
	Spica	E.	60 28 36	2461	58 46 28	2452	57 4 7	2444	55 21 35	2436
	Antares	E.	106 19 22	2487	104 37 51	2475	102 56 3	2465	101 14 0	2454
10	JUPITER	W.	98 45 41	2381	100 29 43	2374	102 13 55	2366	103 58 18	2360
	Aldebaran	W.	87 32 39	2347	89 17 31	2340	91 2 33	2331	92 47 47	2324
	Pollux	W.	44 8 43	2461	45 50 51	2446	47 33 20	2433	49 16 7	2421
	Spica	E.	46 46 17	2404	45 2 48	2400	43 19 14	2397	41 35 35	2395
	Antares	E.	92 40 12	2408	90 56 48	2400	89 13 13	2393	87 29 28	2386
11	Aldebaran	W.	101 36 18	2295	103 22 25	2290	105 8 39	2285	106 55 0	2282
	Pollux	W.	57 54 1	2372	59 38 16	2365	61 22 41	2358	63 7 17	2352
	Regulus	W.	21 27 47	2295	23 13 54	2291	25 0 7	2286	26 46 28	2282
	Spica	E.	32 57 4	2402	31 13 32	2409	29 30 10	2418	27 47 1	2431
	Antares	E.	78 48 28	2359	77 3 54	2355	75 19 14	2352	73 34 30	2348
12	Pollux	W.	71 52 14	2328	73 37 32	2325	75 22 55	2322	77 8 22	2320
	Regulus	W.	35 39 30	2266	37 26 19	2264	39 13 11	2263	41 0 5	2261
	Antares	E.	64 50 1	2342	63 5 3	2343	61 20 6	2344	59 35 10	2346
	SUN	E.	138 40 42	2585	137 1 26	2583	135 22 7	2580	133 42 45	2579
13	Pollux	W.	85 56 13	2315	87 41 51	2315	89 27 28	2316	91 13 4	2316
	Regulus	W.	49 55 0	2258	51 42 1	2259	53 29 1	2260	55 16 0	2260
	Antares	E.	50 51 26	2364	49 6 59	2370	47 22 42	2377	45 38 34	2385
	α Aquilæ	E.	98 17 27	2783	96 42 37	2780	95 7 43	2777	93 32 45	2776
	SUN	E.	125 25 33	2576	123 46 5	2576	122 6 37	2577	120 27 11	2577
14	Pollux	W.	100 0 38	2326	101 46 0	2328	103 31 18	2332	105 16 31	2335
	Regulus	W.	64 10 32	2268	65 57 19	2269	67 44 4	2272	69 30 45	2274
	Antares	E.	37 1 30	2448	35 19 3	2467	33 37 3	2488	31 55 33	2513
	α Aquilæ	E.	85 38 1	2787	84 3 16	2792	82 28 37	2798	80 54 7	2805
	SUN	E.	112 10 21	2586	110 31 6	2588	108 51 54	2590	107 12 45	2593

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh	P. L. of Diff.	XVIIIh	P. L. of Diff.	XXIh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
7	α Arietis	W.	85 55 35	2720	87 31 48	2706	89 8 20	2693	90 45 9	2680
	Jupiter	W.	64 55 9	2603	66 34 0	2589	68 13 10	2576	69 52 38	2563
	Aldebaran	W.	53 26 6	2567	55 5 46	2554	56 45 44	2541	58 26 0	2528
	Regulus	E.	26 42 37	2568	25 2 58	2554	23 23 0	2541	21 42 44	2528
	Spica	E.	80 34 32	2598	78 55 35	2585	77 16 19	2572	75 36 46	2560
8	α Arietis	W.	98 53 24	2623	100 31 48	2613	102 10 26	2604	103 49 16	2595
	Jupiter	W.	78 14 28	2500	79 55 41	2488	81 37 11	2477	83 18 57	2465
	Aldebaran	W.	66 51 47	2466	68 33 48	2455	70 16 5	2443	71 58 39	2432
	Pollux	W.	24 23 42	2798	25 58 12	2748	27 33 48	2705	29 10 21	2667
	Spica	E.	67 14 49	2501	65 33 38	2490	63 52 11	2480	62 10 30	2471
9	Jupiter	W.	91 51 33	2415	93 34 46	2406	95 18 12	2397	97 1 51	2389
	Aldebaran	W.	80 35 14	2381	82 19 16	2371	84 3 32	2363	85 47 59	2355
	Pollux	W.	37 24 8	2532	39 4 37	2512	40 45 34	2493	42 26 57	2477
	Spica	E.	53 38 51	2428	51 55 56	2421	50 12 51	2415	48 29 38	2410
	Antares	E.	99 31 42	2443	97 49 9	2434	96 6 23	2425	94 23 24	2416
10	Jupiter	W.	105 42 50	2354	107 27 31	2348	109 12 21	2342	110 57 19	2337
	Aldebaran	W.	94 33 11	2318	96 18 45	2312	98 4 27	2305	99 50 19	2300
	Pollux	W.	50 59 12	2410	52 42 33	2399	54 26 9	2389	56 9 59	2381
	Spica	E.	39 51 53	2394	38 8 9	2393	36 24 25	2394	34 40 42	2398
	Antares	E.	85 45 33	2380	84 1 29	2373	82 17 16	2368	80 32 55	2364
11	Aldebaran	W.	108 41 26	2278	110 27 58	2275	112 14 35	2271	114 1 17	2269
	Pollux	W.	64 52 1	2346	66 36 54	2341	68 21 54	2336	70 7 1	2332
	Regulus	W.	28 32 54	2278	30 19 26	2275	32 6 3	2271	33 52 45	2269
	Spica	E.	26 4 10	2447	24 21 42	2468	22 39 44	2497	20 58 26	2533
	Antares	E.	71 49 41	2346	70 4 49	2345	68 19 55	2343	66 34 58	2343
12	Pollux	W.	78 53 52	2318	80 39 25	2317	82 25 0	2316	84 10 36	2315
	Regulus	W.	42 47 2	2260	44 34 0	2259	46 20 59	2259	48 7 59	2258
	Antares	E.	57 50 17	2348	56 5 27	2351	54 20 41	2354	52 36 0	2359
	Sun	E.	132 3 21	2577	130 23 55	2577	128 44 28	2577	127 5 1	2576
13	Pollux	W.	92 58 40	2318	94 44 13	2320	96 29 44	2321	98 15 13	2324
	Regulus	W.	57 2 58	2261	58 49 54	2262	60 36 49	2264	62 23 42	2266
	Antares	E.	43 54 38	2395	42 10 56	2406	40 27 29	2418	38 44 20	2432
	α Aquilæ	E.	91 57 45	2776	90 22 46	2776	88 47 47	2779	87 12 52	2783
	Sun	E.	118 47 45	2579	117 8 21	2580	115 28 59	2581	113 49 38	2584
14	Pollux	W.	107 1 40	2339	108 46 43	2343	110 31 40	2348	112 16 30	2351
	Regulus	W.	71 17 23	2277	73 3 57	2279	74 50 27	2282	76 36 53	2285
	Antares	E.	30 14 38	2543	28 34 24	2577	26 54 58	2618	25 16 28	2669
	α Aquilæ	E.	79 19 47	2814	77 45 39	2825	76 11 43	2836	74 38 2	2849
	Sun	E.	105 33 40	2595	103 54 38	2599	102 15 41	2601	100 36 47	2604

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	III^{h}	P. L. of Diff.	VI^{h}	P. L. of Diff.	IX^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
15	Regulus	W.	78 23 15	2288	80 9 32	2292	81 55 44	2295	83 41 51	2298
	Spica	W.	25 25 32	2444	27 8 4	2430	28 50 56	2418	30 34 5	2410
	a Aquilæ	E.	73 4 38	2863	71 31 31	2878	69 58 44	2894	68 26 18	2913
	Sun	E.	98 57 58	2608	97 19 14	2611	95 40 34	2615	94 1 59	2618
16	Regulus	W.	92 31 9	2318	94 16 43	2321	96 2 12	2325	97 47 35	2330
	Spica	W.	39 12 7	2389	40 55 57	2389	42 39 48	2389	44 23 39	2389
	a Aquilæ	E.	60 50 41	3033	59 21 9	3064	57 52 15	3097	56 24 1	3134
	Sun	E.	85 50 24	2639	84 12 22	2643	82 34 26	2647	80 56 35	2652
17	Spica	W.	53 2 35	2398	54 46 13	2400	56 29 47	2403	58 13 18	2407
	a Aquilæ	E.	49 15 14	3374	47 52 28	3437	46 30 53	3507	45 10 37	3584
	Sun	E.	72 48 59	2677	71 11 48	2681	69 34 43	2687	67 57 45	2693
18	Spica	W.	66 49 29	2427	68 32 26	2431	70 15 16	2436	71 57 59	2441
	Antares	W.	22 24 36	2821	23 58 37	2772	25 33 41	2733	27 9 37	2702
	Sun	E.	59 54 46	2720	58 18 33	2726	56 42 27	2732	55 6 30	2738
19	Spica	W.	80 29 43	2469	82 11 40	2475	83 53 28	2482	85 35 7	2488
	Antares	W.	35 17 14	2620	36 55 42	2613	38 34 20	2607	40 13 6	2602
	Sun	E.	47 8 48	2771	45 33 42	2778	43 58 45	2785	42 23 57	2792
20	Spica	W.	94 1 2	2523	95 41 43	2530	97 22 14	2539	99 2 33	2547
	Antares	W.	48 27 42	2601	50 6 36	2603	51 45 27	2607	53 24 13	2610
	Sun	E.	34 32 25	2831	32 58 37	2839	31 25 0	2848	29 51 35	2856
25	Sun	W.	25 23 0	3253	26 48 7	3263	28 13 2	3273	29 37 45	3284
	Jupiter	E.	57 18 51	2939	55 47 21	2950	54 16 6	2962	52 45 5	2972
	Aldebaran	E.	67 6 58	2880	65 34 14	2891	64 1 43	2901	62 29 25	2911
	Pollux	E.	111 0 5	2945	109 28 43	2954	107 57 32	2962	106 26 32	2971
26	Sun	W.	36 38 19	3333	38 1 52	3343	39 25 14	3352	40 48 26	3361
	Jupiter	E.	45 13 22	3026	43 43 41	3036	42 14 13	3047	40 44 59	3057
	Aldebaran	E.	54 51 0	2957	53 19 53	2966	51 48 58	2974	50 18 13	2983
	Pollux	E.	98 54 17	3014	97 24 22	3023	95 54 38	3031	94 25 3	3039
27	Sun	W.	47 41 57	3400	49 4 13	3408	50 26 21	3415	51 48 21	3421
	Jupiter	E.	33 21 56	3109	31 53 57	3121	30 26 13	3131	28 58 41	3143
	Aldebaran	E.	42 46 58	3020	41 17 10	3026	39 47 30	3033	38 17 58	3038
	Pollux	E.	86 59 34	3076	85 30 55	3083	84 2 25	3089	82 34 2	3095
28	Sun	W.	58 36 45	3447	59 58 9	3450	61 19 29	3454	62 40 45	3456
	Mars	W.	20 30 48	3431	21 52 30	3424	23 14 19	3419	24 36 14	3416
	Aldebaran	E.	30 51 54	3062	29 22 58	3066	27 54 7	3069	26 25 19	3072
	Pollux	E.	75 13 54	3122	73 46 11	3126	72 18 33	3131	70 51 1	3134

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
15	Regulus	W.	85 27 53	2301	87 13 51	2306	88 59 42	2309	90 45 28	2313
	Spica	W.	32 17 26	2403	34 0 57	2398	35 44 35	2394	37 28 19	2391
	α Aquilæ	E.	66 54 15	2933	65 22 38	2955	63 51 28	2979	62 20 49	3004
	Sun	E.	92 23 29	2623	90 45 5	2627	89 6 46	2630	87 28 32	2635
16	Regulus	W.	99 32 51	2333	101 18 2	2338	103 3 6	2343	104 48 3	2347
	Spica	W.	46 7 30	2389	47 51 20	2391	49 35 8	2393	51 18 53	2395
	α Aquilæ	E.	54 56 32	3173	53 29 50	3216	52 4 0	3264	50 39 7	3316
	Sun	E.	79 18 51	2657	77 41 14	2661	76 3 42	2666	74 26 17	2672
17	Spica	W.	59 56 43	2410	61 40 3	2414	63 23 17	2418	65 6 26	2422
	α Aquilæ	E.	43 51 45	3669	42 34 25	3764	41 18 45	3871	40 4 56	3990
	Sun	E.	66 20 55	2697	64 44 11	2703	63 7 35	2709	61 31 7	2714
18	Spica	W.	73 40 35	2446	75 23 4	2452	77 5 25	2457	78 47 38	2463
	Antares	W.	28 46 14	2678	30 23 24	2658	32 1 1	2642	33 38 59	2629
	Sun	E.	53 30 40	2744	51 54 59	2751	50 19 27	2757	48 44 3	2764
19	Spica	W.	87 16 37	2495	88 57 58	2501	90 39 10	2509	92 20 11	2516
	Antares	W.	41 51 58	2600	43 30 53	2599	45 9 49	2599	46 48 46	2599
	Sun	E.	40 49 19	2799	39 14 50	2808	37 40 32	2815	36 6 23	2823
20	Spica	W.	100 42 41	2555	102 22 38	2563	104 2 24	2572	105 41 57	2581
	Antares	W.	55 2 55	2614	56 41 31	2618	58 20 1	2624	59 58 24	2629
	Sun	E.	28 18 20	2866	26 45 17	2874	25 12 25	2884	23 39 46	2894
25	Sun	W.	31 2 15	3294	32 26 33	3304	33 50 40	3314	35 14 35	3324
	Jupiter	E.	51 14 17	2984	49 43 44	2994	48 13 23	3005	46 43 16	3015
	Aldebaran	E.	60 57 20	2920	59 25 27	2930	57 53 46	2939	56 22 17	2949
	Pollux	E.	104 55 43	2980	103 25 5	2989	101 54 38	2998	100 24 22	3006
26	Sun	W.	42 11 27	3370	43 34 18	3378	44 57 0	3386	46 19 33	3393
	Jupiter	E.	39 15 56	3068	37 47 7	3078	36 18 30	3089	34 50 7	3099
	Aldebaran	E.	48 47 39	2991	47 17 15	2998	45 47 0	3006	44 16 54	3014
	Pollux	E.	92 55 39	3047	91 26 24	3054	89 57 18	3062	88 28 22	3069
27	Sun	W.	53 10 14	3426	54 32 1	3432	55 53 41	3437	57 15 16	3442
	Jupiter	E.	27 31 23	3155	26 4 20	3168	24 37 33	3182	23 11 2	3198
	Aldebaran	E.	36 48 32	3043	35 19 13	3049	33 50 1	3054	32 20 55	3058
	Pollux	E.	81 5 46	3101	79 37 38	3107	78 9 37	3112	76 41 42	3118
28	Sun	W.	64 1 58	3459	65 23 8	3461	66 44 16	3462	68 5 23	3463
	Mars	W.	25 58 13	3412	27 20 16	3408	28 42 24	3406	30 4 34	3402
	Aldebaran	E.	24 56 35	3074	23 27 54	3076	21 59 15	3078	20 30 38	3078
	Pollux	E.	69 23 33	3138	67 56 9	3142	66 28 50	3144	65 1 33	3147

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S					Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.			
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Thur.	1	22 46 12.05	9.377	S. 7 48 59.7	+56.81	16 10.10	65.45	12 38.65	0.478
Frid.	2	22 49 56.83	9.355	7 26 13.0	57.08	16 9.87	65.38	12 26.92	0.500
Sat.	3	22 53 41.09	9.334	7 3 20.2	57.32	16 9.63	65.31	12 14.66	0.521
SUN.	4	22 57 24.86	9.314	6 40 21.4	+57.56	16 9.39	65.24	12 1.90	0.541
Mon.	5	23 1 8.13	9.294	6 17 17.2	57.78	16 9.15	65.17	11 48.66	0.561
Tues.	6	23 4 50.96	9.275	5 54 7.9	57.99	16 8.90	65.11	11 34.97	0.580
Wed.	7	23 8 33.33	9.257	5 30 53.7	+58.18	16 8.65	65.05	11 20.83	0.598
Thur.	8	23 12 15.28	9.240	5 7 35.2	58.35	16 8.41	64.99	11 6.26	0.615
Frid.	9	23 15 56.82	9.224	4 44 12.8	58.51	16 8.16	64.93	10 51.30	0.631
Sat.	10	23 19 38.00	9.209	4 20 46.8	+58.65	16 7.90	64.88	10 35.97	0.646
SUN.	11	23 23 18.83	9.195	3 57 17.6	58.78	16 7.63	64.83	10 20.29	0.660
Mon.	12	23 26 59.34	9.182	3 33 45.4	58.89	16 7.36	64.78	10 4.28	0.673
Tues.	13	23 30 39.54	9.170	3 10 10.8	+58.99	16 7.09	64.73	9 47.98	0.685
Wed.	14	23 34 19.47	9.159	2 46 33.9	59.08	16 6.83	64.69	9 31.40	0.696
Thur.	15	23 37 59.13	9.149	2 22 55.2	59.15	16 6.56	64.65	9 14.56	0.706
Frid.	16	23 41 38.59	9.140	1 59 15.0	+59.20	16 6.29	64.62	8 57.51	0.715
Sat.	17	23 45 17.83	9.132	1 35 33.8	59.24	16 6.01	64.59	8 40.25	0.723
SUN.	18	23 48 56.89	9.125	1 11 51.6	59.26	16 5.73	64.56	8 22.80	0.730
Mon.	19	23 52 35.77	9.117	0 48 9.1	+59.27	16 5.45	64.53	8 5.18	0.737
Tues.	20	23 56 14.51	9.111	0 24 26.7	59.26	16 5.18	64.51	7 47.42	0.743
Wed.	21	23 59 53.11	9.106	S. 0 0 44.6	59.24	16 4.90	64.49	7 29.52	0.748
Thur.	22	0 3 31.61	9.102	N. 0 22 56.9	+59.20	16 4.62	64.47	7 11.50	0.752
Frid.	23	0 7 10.00	9.098	0 46 37.2	59.15	16 4.34	64.46	6 53.39	0.756
Sat.	24	0 10 48.33	9.095	1 10 16.0	59.08	16 4.07	64.45	6 35.22	0.759
SUN.	25	0 14 26.59	9.093	1 33 53.0	+59.00	16 3.79	64.44	6 16.97	0.761
Mon.	26	0 18 4.80	9.092	1 57 27.8	58.90	16 3.52	64.44	5 58.69	0.763
Tues.	27	0 21 42.97	9.091	2 20 59.9	58.78	16 3.24	64.44	5 40.36	0.764
Wed.	28	0 25 21.14	9.091	2 44 29.2	+58.65	16 2.97	64.44	5 22.04	0.764
Thur.	29	0 28 59.31	9.092	3 7 55.0	58.51	16 2.70	64.44	5 3.71	0.763
Frid.	30	0 32 37.52	9.093	3 31 17.3	58.35	16 2.43	64.45	4 45.41	0.762
Sat.	31	0 36 15.76	9.095	3 54 35.4	58.17	16 2.16	64.46	4 27.15	0.760
SUN.	32	0 39 54.07	9.098	N. 4 17 49.2	+57.98	16 1.88	64.47	4 8.95	0.757

Note.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.18$ from the sidereal time. The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing; north declinations increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ′ ″	″	m s	s	h m s
Thur.	1	22 46 10.07	9.378	S. 7 49 11.7	+56.81	12 38.75	0.478	22 33 31.32
Frid.	2	22 49 54.89	9.356	7 26 24.9	57.08	12 27.02	0.500	22 37 27.87
Sat.	3	22 53 39.19	9.335	7 3 31.9	57.33	12 14.77	0.521	22 41 24.42
SUN.	4	22 57 22.99	9.315	6 40 32.9	+57.57	12 2.01	0.541	22 45 20.98
Mon.	5	23 1 6.30	9.295	6 17 28.5	57.79	11 48.77	0.561	22 49 17.53
Tues.	6	23 4 49.16	9.276	5 54 19.0	58.00	11 35.08	0.580	22 53 14.08
Wed.	7	23 8 31.57	9.258	5 31 4.7	+58.19	11 20.94	0.598	22 57 10.63
Thur.	8	23 12 13.56	9.241	5 7 46.0	58.36	11 6.37	0.615	23 1 7.19
Frid.	9	23 15 55.15	9.225	4 44 23.4	58.52	10 51.41	0.631	23 5 3.74
Sat.	10	23 19 36.37	9.210	4 20 57.2	+58.66	10 36.08	0.646	23 9 0.29
SUN.	11	23 23 17.24	9.196	3 57 27.7	58.79	10 20.40	0.660	23 12 56.84
Mon.	12	23 26 57.79	9.183	3 33 55.3	58.90	10 4.39	0.673	23 16 53.40
Tues.	13	23 30 38.04	9.171	3 10 20.4	+59.00	9 48.09	0.685	23 20 49.95
Wed.	14	23 34 18.01	9.160	2 46 43.3	59.09	9 31.51	0.696	23 24 46.50
Thur.	15	23 37 57.72	9.150	2 23 4.3	59.16	9 14.67	0.706	23 28 43.05
Frid.	16	23 41 37.22	9.141	1 59 23.8	+59.21	8 57.62	0.715	23 32 39.60
Sat.	17	23 45 16.51	9.133	1 35 42.3	59.25	8 40.35	0.723	23 36 36.16
SUN.	18	23 48 55.61	9.126	1 11 59.9	59.27	8 22.90	0.730	23 40 32.71
Mon.	19	23 52 34.54	9.119	0 48 17.1	+59.28	8 5.28	0.737	23 44 29.26
Tues.	20	23 56 13.32	9.113	0 24 34.4	59.27	7 47.51	0.743	23 48 25.81
Wed.	21	23 59 51.97	9.108	S. 0 0 52.0	59.25	7 29.61	0.748	23 52 22.36
Thur.	22	0 3 30.51	9.104	N. 0 22 49.8	+59.21	7 11.59	0.752	23 56 18.92
Frid.	23	0 7 8.95	9.100	0 46 30.4	59.16	6 53.48	0.756	0 0 15.47
Sat.	24	0 10 47.32	9.097	1 10 9.5	59.09	6 35.30	0.759	0 4 12.02
SUN.	25	0 14 25.62	9.095	1 33 46.8	+59.01	6 17.05	0.761	0 8 8.57
Mon.	26	0 18 3.88	9.094	1 57 21.9	58.91	5 58.76	0.763	0 12 5.12
Tues.	27	0 21 42.11	9.093	2 20 54.4	58.79	5 40.43	0.764	0 16 1.68
Wed.	28	0 25 20.33	9.093	2 44 24.0	+58.66	5 22.10	0.764	0 19 58.23
Thur.	29	0 28 58.55	9.094	3 7 50.2	58.52	5 3.77	0.763	0 23 54.78
Frid.	30	0 32 36.80	9.095	3 31 12.7	58.36	4 45.47	0.762	0 27 51.33
Sat.	31	0 36 15.09	9.097	3 54 31.1	58.18	4 27.21	0.760	0 31 47.88
SUN.	32	0 39 53.44	9.100	N. 4 17 45.2	+57.99	4 9.00	0.757	0 35 44.44

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon. The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing; north declinations, increasing.

Diff. for 1 Hour, $+9^{s}.8565$. (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.			
		λ	λ′					
		° ′ ″	′ ″	″	″			h m s
1	60	340 0 46.2	0 48.4	150.50	— 0.28	9.996 1325	+ 43.8	1 26 14.51
2	61	341 0 57.2	0 59.3	150.42	0.27	9.996 2382	44.2	1 22 18.61
3	62	342 1 6.1	1 8.2	150.33	0.23	9.996 3449	44.7	1 18 22.70
4	63	343 1 13.0	1 15.0	150.24	— 0.17	9.996 4526	+ 45.1	1 14 26.79
5	64	344 1 17.8	1 19.6	150.15	— 0.09	9.996 5614	45.6	1 10 30.89
6	65	345 1 20.4	1 22.1	150.07	+ 0.01	9.996 6715	46.1	1 6 34.98
7	66	346 1 20.9	1 22.6	149.98	+ 0.13	9.996 7828	+ 46.7	1 2 39.07
8	67	347 1 19.3	1 20.9	149.89	0.26	9.996 8955	47.2	0 58 43.17
9	68	348 1 15.6	1 17.1	149.80	0.39	9.997 0096	47.8	0 54 47.26
10	69	349 1 10.0	1 11.4	149.72	+ 0.52	9.997 1251	+ 48.4	0 50 51.36
11	70	350 1 2.4	1 3.8	149.64	0.64	9.997 2421	49.0	0 46 55.45
12	71	351 0 52.9	0 54.2	149.57	0.74	9.997 3606	49.6	0 42 59.54
13	72	352 0 41.6	0 42.8	149.49	+ 0.80	9.997 4804	+ 50.2	0 39 3.64
14	73	353 0 28.6	0 29.7	149.42	0.83	9.997 6014	50.7	0 35 7.73
15	74	354 0 13.8	0 14.8	149.35	0.83	9.997 7234	51.1	0 31 11.82
16	75	354 59 57.3	59 58.2	149.28	+ 0.80	9.997 8464	+ 51.4	0 27 15.92
17	76	355 59 39.2	59 40.0	149.21	0.73	9.997 9701	51.7	0 23 20.01
18	77	356 59 19.3	59 20.0	149.14	0.64	9.998 0943	51.8	0 19 24.10
19	78	357 58 57.8	58 58.4	149.07	+ 0.53	9.998 2189	+ 51.9	0 15 28.20
20	79	358 58 34.5	58 35.0	148.99	0.40	9.998 3437	52.0	0 11 32.29
21	80	359 58 9.4	58 9.9	148.92	0.25	9.998 4686	52.0	0 7 36.39
22	81	0 57 42.5	57 42.9	148.84	+ 0.11	9.998 5934	+ 52.0	0 3 40.48 23 59 44.57
23	82	1 57 13.7	57 14.1	148.76	— 0.02	9.998 7180	51.9	23 55 48.66
24	83	2 56 42.9	56 43.2	148.68	0.13	9.998 8424	51.8	23 51 52.76
25	84	3 56 10.2	56 10.4	148.59	— 0.23	9.998 9665	+ 51.6	23 47 56.85
26	85	4 55 35.3	55 35.4	148.50	0.31	9.999 0903	51.5	23 44 0.95
27	86	5 54 58.4	54 58.4	148.41	0.36	9.999 2138	51.4	23 40 5.04
28	87	6 54 19.3	54 19.2	148.32	— 0.39	9.999 3370	+ 51.3	23 36 9.14
29	88	7 53 38.0	53 37.8	148.23	0.39	9.999 4599	51.1	23 32 13.23
30	89	8 52 54.4	52 54.1	148.14	0.37	9.999 5825	51.0	23 28 17.32
31	90	9 52 8.6	52 8.2	148.05	0.32	9.999 7049	50.9	23 24 21.42
32	91	10 51 20.4	51 20.0	147.95	— 0.24	9.999 8271	+ 50.9	23 20 25.51

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ′ are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour,
— $9^{s}.8296$.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	14 47.1	14 47.6	54 9.8	+ 0.04	54 11.6	+ 0.25	4 48.5	1.85	6.2
2	14 48.8	14 50.6	54 15.9	0.47	54 22.8	0.69	5 33.5	1.91	7.2
3	14 53.2	14 56.6	54 32.4	0.90	54 44.5	1.11	6 20.2	1.98	8.2
4	15 0.6	15 5.2	54 59.2	+ 1.32	55 16.2	+ 1.51	7 8.8	2.06	9.2
5	15 10.4	15 16.2	55 35.4	1.68	55 56.5	1.83	7 59.1	2.13	10.2
6	15 22.4	15 28.9	56 19.3	1.96	56 43.4	2.05	8 50.9	2.18	11.2
7	15 35.7	15 42.6	57 8.3	+ 2.10	57 33.6	+ 2.11	9 43.7	2.21	12.2
8	15 49.5	15 56.2	57 58.9	2.08	58 23.4	2.01	10 36.9	2.22	13.2
9	16 2.5	16 8.4	58 46.8	1.88	59 8.4	1.71	11 30.1	2.21	14.2
10	16 13.7	16 18.3	59 27.8	+ 1.51	59 44.4	+ 1.27	12 23.2	2.21	15.2
11	16 22.0	16 24.8	59 58.0	0.99	60 8.2	0.70	13 16.3	2.22	16.2
12	16 26.6	16 27.4	60 14.8	+ 0.41	60 17.9	+ 0.12	14 9.8	2.24	17.2
13	16 27.3	16 26.3	60 17.6	− 0.16	60 13.9	− 0.42	15 4.1	2.28	18.2
14	16 24.5	16 22.0	60 7.3	0.66	59 58.0	0.87	15 59.4	2.32	19.2
15	16 18.9	16 15.2	59 46.4	1.05	59 33.0	1.19	16 55.7	2.36	20.2
16	16 11.1	16 6.7	59 18.1	− 1.29	59 2.1	− 1.36	17 52.6	2.37	21.2
17	16 2.2	15 57.5	58 45.4	1.41	58 28.3	1.43	18 49.3	2.35	22.2
18	15 52.8	15 48.1	58 11.0	1.44	57 53.7	1.44	19 45.0	2.28	23.2
19	15 43.4	15 38.8	57 36.6	− 1.42	57 19.7	− 1.39	20 38.8	2.19	24.2
20	15 34.3	15 30.0	57 3.2	1.36	56 47.1	1.32	21 30.2	2.09	25.2
21	15 25.7	15 21.6	56 31.5	1.29	56 16.3	1.25	22 19.2	1.99	26.2
22	15 17.6	15 13.7	56 1.6	− 1.20	55 47.4	− 1.16	23 5.8	1.90	27.2
23	15 9.9	15 6.4	55 33.7	1.12	55 20.6	1.07	23 50.7	1.84	28.2
24	15 3.0	14 59.8	55 8.1	1.01	54 56.3	0.95	6	. .	29.2
25	14 56.8	14 54.1	54 45.4	− 0.87	54 35.4	− 0.79	0 34.3	1.80	0.5
26	14 51.6	14 49.5	54 26.4	0.70	54 18.6	0.59	1 17.3	1.79	1.5
27	14 47.7	14 46.4	54 12.2	0.47	54 7.3	0.34	2 0.3	1.80	2.5
28	14 45.5	14 45.1	54 4.0	− 0.20	54 2.6	− 0.04	2 43.8	1.83	3.5
29	14 45.3	14 46.0	54 3.1	+ 0.13	54 5.8	+ 0.31	3 28.2	1.88	4.5
30	14 47.3	14 49.3	54 10.7	0.50	54 17.9	0.70	4 14.0	1.94	5.5
31	14 51.9	14 55.2	54 27.6	0.90	54 39.7	1.11	5 1.3	2.00	6.5
32	14 59.2	15 3.8	54 54.3	+ 1.32	55 11.3	+ 1.51	5 50.1	2.06	7.5

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 1.					SATURDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	3 13 27.37	1.9460	N.12 31 1.6	7.780	0	4 49 32.41	2.0660	N.17 34 10.8	4.651
1	3 15 24.19	1.9479	12 38 46.8	7.727	1	4 51 36.46	2.0689	17 38 47.5	4.573
2	3 17 21.12	1.9498	12 46 28.8	7.673	2	4 53 40.68	2.0718	17 43 19.5	4.494
3	3 19 18.16	1.9518	12 54 7.6	7.619	3	4 55 45.07	2.0748	17 47 46.8	4.415
4	3 21 15.33	1.9538	13 1 43.1	7.564	4	4 57 49.65	2.0777	17 52 9.3	4.335
5	3 23 12.62	1.9558	13 9 15.3	7.510	5	4 59 54.40	2.0806	17 56 27.0	4.255
6	3 25 10.03	1.9578	13 16 44.3	7.454	6	5 1 59.32	2.0836	18 0 39.9	4.174
7	3 27 7.56	1.9599	13 24 9.8	7.398	7	5 4 4.43	2.0866	18 4 47.9	4.093
8	3 29 5.22	1.9621	13 31 32.0	7.342	8	5 6 9.71	2.0895	18 8 51.1	4.012
9	3 31 3.01	1.9642	13 38 50.8	7.285	9	5 8 15.17	2.0925	18 12 49.3	3.929
10	3 33 0.92	1.9663	13 46 6.2	7.227	10	5 10 20.81	2.0955	18 16 42.6	3.847
11	3 34 58.97	1.9686	13 53 18.0	7.168	11	5 12 26.63	2.0984	18 20 30.9	3.763
12	3 36 57.15	1.9708	14 0 26.4	7.111	12	5 14 32.62	2.1013	18 24 14.1	3.679
13	3 38 55.47	1.9731	14 7 31.3	7.051	13	5 16 38.79	2.1043	18 27 52.4	3.596
14	3 40 53.92	1.9753	14 14 32.5	6.991	14	5 18 45.14	2.1073	18 31 25.6	3.511
15	3 42 52.51	1.9777	14 21 30.2	6.932	15	5 20 51.67	2.1103	18 34 53.7	3.425
16	3 44 51.24	1.9800	14 28 24.3	6.871	16	5 22 58.38	2.1133	18 38 16.6	3.339
17	3 46 50.11	1.9824	14 35 14.7	6.809	17	5 25 5.26	2.1162	18 41 34.4	3.253
18	3 48 49.13	1.9848	14 42 1.4	6.748	18	5 27 12.32	2.1192	18 44 47.0	3.166
19	3 50 48.29	1.9872	14 48 44.4	6.686	19	5 29 19.56	2.1222	18 47 54.3	3.078
20	3 52 47.59	1.9896	14 55 23.7	6.623	20	5 31 26.98	2.1252	18 50 56.4	2.991
21	3 54 47.04	1.9921	15 1 59.2	6.559	21	5 33 34.58	2.1281	18 53 53.2	2.903
22	3 56 46.64	1.9946	15 8 30.8	6.495	22	5 35 42.35	2.1309	18 56 44.7	2.814
23	3 58 46.39	1.9971	N.15 14 58.6	6.431	23	5 37 50.29	2.1338	N.18 59 30.9	2.724
	FRIDAY 2.					SUNDAY 4.			
0	4 0 46.29	1.9996	N.15 21 22.5	6.366	0	5 39 58.41	2.1368	N.19 2 11.6	2.634
1	4 2 46.34	2.0022	15 27 42.5	6.301	1	5 42 6.71	2.1398	19 4 47.0	2.544
2	4 4 46.55	2.0048	15 33 58.6	6.235	2	5 44 15.18	2.1427	19 7 16.9	2.453
3	4 6 46.92	2.0074	15 40 10.7	6.168	3	5 46 23.83	2.1456	19 9 41.4	2.363
4	4 8 47.44	2.0099	15 46 18.8	6.102	4	5 48 32.65	2.1484	19 12 0.5	2.272
5	4 10 48.11	2.0126	15 52 22.9	6.034	5	5 50 41.64	2.1513	19 14 14.0	2.178
6	4 12 48.95	2.0153	15 58 22.9	5.965	6	5 52 50.80	2.1542	19 16 21.9	2.086
7	4 14 49.95	2.0180	16 4 18.7	5.897	7	5 55 0.14	2.1571	19 18 24.3	1.993
8	4 16 51.11	2.0207	16 10 10.5	5.828	8	5 57 9.65	2.1598	19 20 21.1	1.900
9	4 18 52.43	2.0233	16 15 58.1	5.758	9	5 59 19.32	2.1627	19 22 12.3	1.806
10	4 20 53.91	2.0261	16 21 41.5	5.688	10	6 1 29.17	2.1655	19 23 57.8	1.711
11	4 22 55.56	2.0289	16 27 20.7	5.617	11	6 3 39.18	2.1683	19 25 37.6	1.617
12	4 24 57.38	2.0317	16 32 55.5	5.545	12	6 5 49.37	2.1711	19 27 11.8	1.523
13	4 26 59.36	2.0344	16 38 26.1	5.474	13	6 7 59.72	2.1738	19 28 40.3	1.427
14	4 29 1.51	2.0372	16 43 52.4	5.402	14	6 10 10.23	2.1766	19 30 3.0	1.330
15	4 31 3.83	2.0401	16 49 14.3	5.329	15	6 12 20.91	2.1793	19 31 19.9	1.233
16	4 33 6.32	2.0429	16 54 31.9	5.256	16	6 14 31.75	2.1820	19 32 31.0	1.136
17	4 35 8.98	2.0458	16 59 45.0	5.182	17	6 16 42.75	2.1847	19 33 36.2	1.039
18	4 37 11.81	2.0486	17 4 53.7	5.108	18	6 18 53.91	2.1873	19 34 35.7	0.942
19	4 39 14.81	2.0514	17 9 58.0	5.033	19	6 21 5.23	2.1900	19 35 29.2	0.843
20	4 41 17.98	2.0543	17 14 57.7	4.957	20	6 23 16.71	2.1927	19 36 16.9	0.745
21	4 43 21.33	2.0572	17 19 52.8	4.881	21	6 25 28.35	2.1953	19 36 58.6	0.646
22	4 45 24.85	2.0601	17 24 43.4	4.805	22	6 27 40.15	2.1978	19 37 34.4	0.547
23	4 47 28.54	2.0630	17 29 29.4	4.728	23	6 29 52.09	2.2003	19 38 4.2	0.446
24	4 49 32.41	2.0660	N.17 34 10.8	4.651	24	6 32 4.19	2.2029	N.19 38 27.9	0.346

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 5.					**WEDNESDAY 7.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	6 32 4.19	2.2029	N.19 38 27.9	0.346	0	8 20 10.33	2.2885	N.17 54 48.8	4.718
1	6 34 16.44	2.2051	19 38 45.7	0.246	1	8 22 27.67	2.2895	17 50 2.5	4.825
2	6 36 28.84	2.2079	19 38 57.4	0.145	2	8 24 45.07	2.2905	17 45 9.8	4.932
3	6 38 41.39	2.2104	19 39 3.1	0.044	3	8 27 2.53	2.2913	17 40 10.7	5.038
4	6 40 54.09	2.2128	19 39 2.7	0.058	4	8 29 20.03	2.2921	17 35 5.2	5.144
5	6 43 6.93	2.2153	19 38 56.2	0.159	5	8 31 37.58	2.2929	17 29 53.4	5.250
6	6 45 19.92	2.2177	19 38 43.6	0.262	6	8 33 55.18	2.2938	17 24 35.2	5.355
7	6 47 33.05	2.2199	19 38 24.8	0.364	7	8 36 12.83	2.2945	17 19 10.8	5.460
8	6 49 46.31	2.2223	19 37 59.9	0.467	8	8 38 30.52	2.2952	17 13 40.0	5.566
9	6 51 59.72	2.2247	19 37 28.8	0.569	9	8 40 48.25	2.2958	17 8 2.9	5.671
10	6 54 13.27	2.2269	19 36 51.6	0.673	10	8 43 6.02	2.2965	17 2 19.5	5.775
11	6 56 26.95	2.2291	19 36 8.1	0.777	11	8 45 23.83	2.2972	16 56 29.9	5.879
12	6 58 40.76	2.2313	19 35 18.4	0.880	12	8 47 41.68	2.2978	16 50 34.0	5.983
13	7 0 54.70	2.2335	19 34 22.5	0.984	13	8 49 59.56	2.2983	16 44 31.9	6.087
14	7 3 8.78	2.2357	19 33 20.3	1.089	14	8 52 17.47	2.2988	16 38 23.6	6.190
15	7 5 22.98	2.2378	19 32 11.8	1.194	15	8 54 35.41	2.2993	16 32 9.1	6.293
16	7 7 37.31	2.2398	19 30 57.0	1.298	16	8 56 53.38	2.2998	16 25 48.4	6.396
17	7 9 51.76	2.2419	19 29 36.0	1.403	17	8 59 11.38	2.3002	16 19 21.6	6.498
18	7 12 6.34	2.2439	19 28 8.6	1.509	18	9 1 29.41	2.3006	16 12 48.6	6.600
19	7 14 21.03	2.2458	19 26 34.9	1.615	19	9 3 47.45	2.3009	16 6 9.6	6.701
20	7 16 35.84	2.2478	19 24 54.8	1.721	20	9 6 5.52	2.3013	15 59 24.5	6.802
21	7 18 50.77	2.2498	19 23 8.4	1.827	21	9 8 23.61	2.3016	15 52 33.4	6.902
22	7 21 5.82	2.2517	19 21 15.6	1.933	22	9 10 41.71	2.3018	15 45 36.3	7.003
23	7 23 20.98	2.2535	N.19 19 16.5	2.039	23	9 12 59.83	2.3022	N.15 38 33.1	7.102
	TUESDAY 6.					**THURSDAY 8.**			
0	7 25 36.24	2.2553	N.19 17 10.9	2.146	0	9 15 17.97	2.3024	N.15 31 24.0	7.201
1	7 27 51.62	2.2572	19 14 59.0	2.253	1	9 17 36.12	2.3027	15 24 9.0	7.299
2	7 30 7.10	2.2588	19 12 40.6	2.359	2	9 19 54.29	2.3028	15 16 48.1	7.398
3	7 32 22.68	2.2606	19 10 15.9	2.466	3	9 22 12.46	2.3030	15 9 21.3	7.495
4	7 34 38.37	2.2623	19 7 44.7	2.573	4	9 24 30.65	2.3032	15 1 48.7	7.592
5	7 36 54.16	2.2640	19 5 7.1	2.681	5	9 26 48.84	2.3033	14 54 10.3	7.688
6	7 39 10.05	2.2656	19 2 23.0	2.788	6	9 29 7.04	2.3034	14 46 26.1	7.784
7	7 41 26.03	2.2671	18 59 32.6	2.894	7	9 31 25.25	2.3035	14 38 36.2	7.879
8	7 43 42.10	2.2687	18 56 35.7	3.002	8	9 33 43.46	2.3036	14 30 40.6	7.973
9	7 45 58.27	2.2703	18 53 32.3	3.110	9	9 36 1.68	2.3037	14 22 39.4	8.068
10	7 48 14.53	2.2718	18 50 22.5	3.218	10	9 38 19.90	2.3037	14 14 32.5	8.161
11	7 50 30.88	2.2732	18 47 6.2	3.324	11	9 40 38.12	2.3037	14 6 20.1	8.253
12	7 52 47.31	2.2745	18 43 43.6	3.431	12	9 42 56.34	2.3037	13 58 2.1	8.346
13	7 55 3.82	2.2759	18 40 14.5	3.540	13	9 45 14.56	2.3037	13 49 38.6	8.437
14	7 57 20.42	2.2772	18 36 38.8	3.648	14	9 47 32.78	2.3036	13 41 9.7	8.528
15	7 59 37.09	2.2785	18 32 56.8	3.754	15	9 49 50.99	2.3035	13 32 35.3	8.618
16	8 1 53.84	2.2798	18 29 8.3	3.862	16	9 52 9.20	2.3035	13 23 55.6	8.706
17	8 4 10.67	2.2810	18 25 13.4	3.969	17	9 54 27.41	2.3034	13 15 10.6	8.794
18	8 6 27.56	2.2821	18 21 12.0	4.077	18	9 56 45.61	2.3033	13 6 20.3	8.882
19	8 8 44.52	2.2833	18 17 4.2	4.184	19	9 59 3.81	2.3032	12 57 24.7	8.969
20	8 11 1.56	2.2845	18 12 49.9	4.291	20	10 1 22.00	2.3031	12 48 24.0	9.055
21	8 13 18.66	2.2855	18 8 29.3	4.398	21	10 3 40.18	2.3029	12 39 18.1	9.140
22	8 15 35.82	2.2866	18 4 2.2	4.505	22	10 5 58.35	2.3028	12 30 7.2	9.224
23	8 17 53.05	2.2876	17 59 28.7	4.612	23	10 8 16.52	2.3027	12 20 51.2	9.308
24	8 20 10.33	2.2885	N.17 54 48.8	4.718	24	10 10 34.67	2.3025	N.12 11 30.3	9.390

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 9.			
	h m s	s	° ′ ″	″
0	10 10 34.67	2.3025	N. 12 11 30.3	9.390
1	10 12 52.82	2.3023	12 2 4.4	9.473
2	10 15 10.95	2.3021	11 52 33.6	9.553
3	10 17 29.07	2.3020	11 42 58.0	9.633
4	10 19 47.19	2.3018	11 33 17.6	9.713
5	10 22 5.29	2.3016	11 23 32.5	9.791
6	10 24 23.38	2.3014	11 13 42.7	9.868
7	10 26 41.46	2.3013	11 3 48.3	9.945
8	10 28 59.53	2.3010	10 53 49.3	10.020
9	10 31 17.58	2.3008	10 43 45.9	10.094
10	10 33 35.62	2.3006	10 33 38.0	10.168
11	10 35 53.65	2.3004	10 23 25.8	10.240
12	10 38 11.67	2.3002	10 13 9.2	10.312
13	10 40 29.67	2.3000	10 2 48.4	10.382
14	10 42 47.67	2.2938	9 52 23.4	10.452
15	10 45 5.65	2.2995	9 41 54.2	10.520
16	10 47 23.61	2.2993	9 31 21.0	10.587
17	10 49 41.57	2.2992	9 20 43.8	10.653
18	10 51 59.52	2.2990	9 10 2.6	10.718
19	10 54 17.45	2.2988	8 59 17.6	10.783
20	10 56 35.38	2.2987	8 48 28.7	10.846
21	10 58 53.29	2.2984	8 37 36.1	10.907
22	11 1 11.19	2.2983	8 26 39.9	10.968
23	11 3 29.09	2.2982	N. 8 15 40.0	11.028
	SATURDAY 10.			
0	11 5 46.98	2.2981	N. 8 4 36.6	11.086
1	11 8 4.86	2.2979	7 53 29.7	11.143
2	11 10 22.73	2.2978	7 42 19.5	11.198
3	11 12 40.59	2.2977	7 31 5.9	11.254
4	11 14 58.45	2.2976	7 19 49.0	11.308
5	11 17 16.30	2.2975	7 8 29.0	11.360
6	11 19 34.15	2.2974	6 57 5.8	11.412
7	11 21 51.99	2.2973	6 45 39.6	11.461
8	11 24 9.83	2.2973	6 34 10.5	11.510
9	11 26 27.66	2.2973	6 22 38.4	11.558
10	11 28 45.50	2.2972	6 11 3.6	11.603
11	11 31 3.33	2.2971	5 59 26.0	11.648
12	11 33 21.15	2.2971	5 47 45.8	11.692
13	11 35 38.98	2.2972	5 36 3.0	11.734
14	11 37 56.81	2.2973	5 24 17.7	11.776
15	11 40 14.65	2.2973	5 12 29.9	11.816
16	11 42 32.49	2.2974	5 0 39.8	11.854
17	11 44 50.34	2.2975	4 48 47.4	11.892
18	11 47 8.19	2.2976	4 36 52.8	11.928
19	11 49 26.05	2.2977	4 24 56.1	11.962
20	11 51 43.91	2.2978	4 12 57.3	11.996
21	11 54 1.79	2.2980	4 0 56.6	12.028
22	11 56 19.67	2.2982	3 48 54.0	12.058
23	11 58 37.57	2.2984	3 36 49.6	12.088
24	12 0 55.48	2.2987	N. 3 24 43.5	12.115

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 11.			
	h m s	s	° ′ ″	″
0	12 0 55.48	2.2987	N. 3 24 43.5	12.115
1	12 3 13.41	2.2989	3 12 35.8	12.142
2	12 5 31.35	2.2992	3 0 26.5	12.167
3	12 7 49.31	2.2995	2 48 15.8	12.190
4	12 10 7.29	2.2998	2 36 3.7	12.212
5	12 12 25.29	2.3002	2 23 50.3	12.233
6	12 14 43.31	2.3005	2 11 35.7	12.253
7	12 17 1.35	2.3009	1 59 19.9	12.272
8	12 19 19.42	2.3013	1 47 3.1	12.288
9	12 21 37.51	2.3018	1 34 45.4	12.303
10	12 23 55.63	2.3022	1 22 26.7	12.317
11	12 26 13.77	2.3027	1 10 7.3	12.330
12	12 28 31.95	2.3033	0 57 47.1	12.342
13	12 30 50.16	2.3038	0 45 26.3	12.351
14	12 33 8.40	2.3043	0 33 5.0	12.358
15	12 35 26.68	2.3050	0 20 43.3	12.366
16	12 37 45.00	2.3056	N. 0 8 21.1	12.372
17	12 40 3.35	2.3062	S. 0 4 1.3	12.375
18	12 42 21.74	2.3068	0 16 23.9	12.[illegible]
19	12 44 40.17	2.3075	0 28 46.6	12.379
20	12 46 58.64	2.3083	0 41 9.4	12.378
21	12 49 17.16	2.3090	0 53 32.0	12.376
22	12 51 35.72	2.3098	1 5 54.5	12.373
23	12 53 54.33	2.3106	S. 1 18 16.8	12.369
	MONDAY 12.			
0	12 56 12.99	2.3114	S. 1 30 38.8	12.363
1	12 58 31.70	2.3123	1 43 0.3	12.355
2	13 0 50.46	2.3131	1 55 21.4	12.346
3	13 3 9.27	2.3139	2 7 41.8	12.335
4	13 5 28.13	2.3149	2 20 1.6	12.323
5	13 7 47.06	2.3159	2 32 20.6	12.310
6	13 10 6.04	2.3168	2 44 38.8	12.295
7	13 12 25.08	2.3178	2 56 56.0	12.279
8	13 14 44.18	2.3188	3 9 12.3	12.262
9	13 17 3.34	2.3198	3 21 27.4	12.243
10	13 19 22.56	2.3209	3 33 41.4	12.222
11	13 21 41.85	2.3221	3 45 54.0	12.199
12	13 24 1.21	2.3232	3 58 5.3	12.176
13	13 26 20.64	2.3243	4 10 15.1	12.151
14	13 28 40.13	2.3255	4 22 23.4	12.125
15	13 30 59.70	2.3267	4 34 30.1	12.097
16	13 33 19.34	2.3279	4 46 35.0	12.068
17	13 35 39.05	2.3292	4 58 38.2	12.038
18	13 37 58.84	2.3304	5 10 39.5	12.005
19	13 40 18.70	2.3318	5 22 38.8	11.972
20	13 42 38.65	2.3331	5 34 36.1	11.937
21	13 44 58.67	2.3343	5 46 31.2	11.901
22	13 47 18.77	2.3358	5 58 24.2	11.863
23	13 49 38.96	2.3372	6 10 14.8	11.823
24	13 51 59.23	2.3385	S. 6 22 3.0	11.783

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 13.					THURSDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	13 51 59.23	2.3385	S. 6 22 3.0	11.783	0	15 46 4.10	2.4158	S. 14 36 5.8	8.341
1	13 54 19.58	2.3399	6 33 48.8	11.742	1	15 48 29.10	2.4173	14 44 23.3	8.242
2	13 56 40.02	2.3413	6 45 32.0	11.698	2	15 50 54.18	2.4188	14 52 34.8	8.143
3	13 59 0.54	2.3428	6 57 12.6	11.653	3	15 53 19.36	2.4203	15 0 40.4	8.042
4	14 1 21.15	2.3443	7 8 50.4	11.608	4	15 55 44.62	2.4217	15 8 39.8	7.940
5	14 3 41.85	2.3458	7 20 25.5	11.561	5	15 58 9.96	2.4231	15 16 33.2	7.837
6	14 6 2.64	2.3472	7 31 57.7	11.512	6	16 0 35.39	2.4244	15 24 20.3	7.734
7	14 8 23.51	2.3487	7 43 26.9	11.461	7	16 3 0.89	2.4258	15 32 1.3	7.631
8	14 10 44.48	2.3503	7 54 53.0	11.409	8	16 5 26.48	2.4272	15 39 36.0	7.525
9	14 13 5.55	2.3518	8 6 16.0	11.357	9	16 7 52.15	2.4284	15 47 4.3	7.419
10	14 15 26.70	2.3533	8 17 35.8	11.303	10	16 10 17.89	2.4297	15 54 26.3	7.313
11	14 17 47.95	2.3550	8 28 52.4	11.248	11	16 12 43.71	2.4309	16 1 41.9	7.206
12	14 20 9.30	2.3566	8 40 5.5	11.190	12	16 15 9.60	2.4321	16 8 51.0	7.098
13	14 22 30.74	2.3582	8 51 15.2	11.132	13	16 17 35.56	2.4333	16 15 53.6	6.989
14	14 24 52.28	2.3598	9 2 21.4	11.073	14	16 20 1.59	2.4344	16 22 49.7	6.880
15	14 27 13.91	2.3613	9 13 23.9	11.012	15	16 22 27.69	2.4355	16 29 39.2	6.769
16	14 29 35.64	2.3631	9 24 22.8	10.950	16	16 24 53.85	2.4365	16 36 22.0	6.658
17	14 31 57.48	2.3648	9 35 17.9	10.887	17	16 27 20.07	2.4375	16 42 58.2	6.547
18	14 34 19.41	2.3663	9 46 9.2	10.822	18	16 29 46.35	2.4384	16 49 27.6	6.435
19	14 36 41.44	2.3679	9 56 56.5	10.756	19	16 32 12.68	2.4394	16 55 50.4	6.322
20	14 39 3.56	2.3696	10 7 39.9	10.689	20	16 34 39.08	2.4403	17 2 6.3	6.208
21	14 41 25.79	2.3714	10 18 19.2	10.621	21	16 37 5.52	2.4412	17 8 15.4	6.094
22	14 43 48.13	2.3731	10 28 54.4	10.552	22	16 39 32.02	2.4421	17 14 17.6	5.979
23	14 46 10.56	2.3747	S. 10 39 25.4	10.480	23	16 41 58.57	2.4428	S. 17 20 12.9	5.864
	WEDNESDAY 14.					FRIDAY 16.			
0	14 48 33.09	2.3764	S. 10 49 52.0	10.408	0	16 44 25.16	2.4435	S. 17 26 1.3	5.749
1	14 50 55.73	2.3781	11 0 14.3	10.335	1	16 46 51.79	2.4442	17 31 42.8	5.633
2	14 53 18.46	2.3798	11 10 32.2	10.261	2	16 49 18.47	2.4449	17 37 17.2	5.516
3	14 55 41.30	2.3816	11 20 45.6	10.185	3	16 51 45.18	2.4455	17 42 44.7	5.399
4	14 58 4.25	2.3833	11 30 54.4	10.108	4	16 54 11.93	2.4460	17 48 5.1	5.281
5	15 0 27.29	2.3849	11 40 58.5	10.030	5	16 56 38.70	2.4465	17 53 18.4	5.163
6	15 2 50.44	2.3867	11 50 58.0	9.951	6	16 59 5.51	2.4470	17 58 24.6	5.044
7	15 5 13.69	2.3883	12 0 52.6	9.870	7	17 1 32.34	2.4474	18 3 23.7	4.925
8	15 7 37.04	2.3900	12 10 42.4	9.789	8	17 3 59.20	2.4477	18 8 15.6	4.805
9	15 10 0.49	2.3917	12 20 27.3	9.707	9	17 6 26.07	2.4480	18 13 0.3	4.686
10	15 12 24.04	2.3933	12 30 7.2	9.623	10	17 8 52.96	2.4483	18 17 37.9	4.566
11	15 14 47.69	2.3950	12 39 42.0	9.538	11	17 11 19.87	2.4485	18 22 8.2	4.444
12	15 17 11.44	2.3967	12 49 11.7	9.452	12	17 13 46.78	2.4487	18 26 31.2	4.323
13	15 19 35.29	2.3984	12 58 36.2	9.365	13	17 16 13.71	2.4488	18 30 47.0	4.202
14	15 21 59.25	2.4001	13 7 55.5	9.277	14	17 18 40.63	2.4488	18 34 55.5	4.081
15	15 24 23.30	2.4017	13 17 9.4	9.188	15	17 21 7.56	2.4488	18 38 56.7	3.958
16	15 26 47.45	2.4033	13 26 18.0	9.098	16	17 23 34.49	2.4488	18 42 50.5	3.837
17	15 29 11.70	2.4049	13 35 21.1	9.007	17	17 26 1.41	2.4487	18 46 37.1	3.715
18	15 31 36.04	2.4066	13 44 18.8	8.915	18	17 28 28.33	2.4485	18 50 16.3	3.592
19	15 34 0.49	2.4082	13 53 10.9	8.821	19	17 30 55.23	2.4482	18 53 48.1	3.468
20	15 36 25.02	2.4097	14 1 57.3	8.727	20	17 33 22.11	2.4479	18 57 12.5	3.346
21	15 38 49.65	2.4113	14 10 38.1	8.632	21	17 35 48.98	2.4476	19 0 29.6	3.223
22	15 41 14.38	2.4129	14 19 13.1	8.536	22	17 38 15.82	2.4472	19 3 39.2	3.099
23	15 43 39.20	2.4143	14 27 42.4	8.439	23	17 40 42.64	2.4467	19 6 41.5	2.976
24	15 46 4.10	2.4158	S. 14 36 5.8	8.341	24	17 43 9.42	2.4461	S. 19 9 36.3	2.852

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 17.					MONDAY 19.				
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	17 43 9.42	2.4461	S. 19 9 36.3	2.852	0	19 38 51.52	2.3534	S. 19 5 50.2	2.897
1	17 45 36.17	2.4456	19 12 23.7	2.728	1	19 41 12.63	2.3503	19 2 53.1	3.007
2	17 48 2.89	2.4450	19 15 3.7	2.605	2	19 43 33.55	2.3471	18 59 49.4	3.116
3	17 50 29.57	2.4443	19 17 36.3	2.481	3	19 45 54.28	2.3438	18 56 39.2	3.224
4	17 52 56.20	2.4435	19 20 1.4	2.357	4	19 48 14.81	2.3405	18 53 22.5	3.332
5	17 55 22.79	2.4427	19 22 19.1	2.233	5	19 50 35.14	2.3372	18 49 59.4	3.439
6	17 57 49.32	2.4418	19 24 29.3	2.108	6	19 52 55.27	2.3338	18 46 29.8	3.546
7	18 0 15.80	2.4408	19 26 32.1	1.985	7	19 55 15.20	2.3304	18 42 53.9	3.651
8	18 2 42.22	2.4399	19 28 27.5	1.861	8	19 57 34.92	2.3269	18 39 11.7	3.756
9	18 5 8.59	2.4388	19 30 15.4	1.737	9	19 59 54.43	2.3235	18 35 23.2	3.861
10	18 7 34.88	2.4377	19 31 55.9	1.613	10	20 2 13.74	2.3201	18 31 28.4	3.965
11	18 10 1.11	2.4365	19 33 28.9	1.488	11	20 4 32.84	2.3165	18 27 27.4	4.067
12	18 12 27.26	2.4353	19 34 54.5	1.365	12	20 6 51.72	2.3129	18 23 20.3	4.169
13	18 14 53.34	2.4340	19 36 12.7	1.242	13	20 9 10.39	2.3093	18 19 7.1	4.271
14	18 17 19.34	2.4327	19 37 23.5	1.118	14	20 11 28.84	2.3058	18 14 47.8	4.372
15	18 19 45.26	2.4313	19 38 26.9	0.994	15	20 13 47.08	2.3022	18 10 22.4	4.472
16	18 22 11.09	2.4298	19 39 22.8	0.871	16	20 16 5.10	2.2985	18 5 51.1	4.571
17	18 24 36.83	2.4283	19 40 11.4	0.748	17	20 18 22.90	2.2948	18 1 13.9	4.670
18	18 27 2.48	2.4267	19 40 52.6	0.626	18	20 20 40.47	2.2910	17 56 30.7	4.768
19	18 29 28.03	2.4250	19 41 26.5	0.503	19	20 22 57.82	2.2873	17 51 41.7	4.864
20	18 31 53.48	2.4233	19 41 53.0	0.381	20	20 25 14.95	2.2836	17 46 47.0	4.961
21	18 34 18.82	2.4215	19 42 12.2	0.258	21	20 27 31.85	2.2798	17 41 46.4	5.057
22	18 36 44.06	2.4197	19 42 24.0	0.136	22	20 29 48.53	2.2761	17 36 40.2	5.151
23	18 39 9.18	2.4178	S. 19 42 28.5	0.014	23	20 32 4.98	2.2722	S. 17 31 28.3	5.245
SUNDAY 18.					TUESDAY 20.				
0	18 41 34.19	2.4158	S. 19 42 25.7	0.108	0	20 34 21.19	2.2683	S. 17 26 10.8	5.338
1	18 43 59.08	2.4138	19 42 15.6	0.228	1	20 36 37.18	2.2645	17 20 47.8	5.430
2	18 46 23.85	2.4118	19 41 58.3	0.348	2	20 38 52.93	2.2607	17 15 19.2	5.522
3	18 48 48.49	2.4097	19 41 33.8	0.469	3	20 41 8.46	2.2568	17 9 45.2	5.613
4	18 51 13.01	2.4075	19 41 2.0	0.589	4	20 43 23.75	2.2529	17 4 5.7	5.703
5	18 53 37.39	2.4053	19 40 23.1	0.708	5	20 45 38.81	2.2490	16 58 20.9	5.791
6	18 56 1.64	2.4030	19 39 37.0	0.828	6	20 47 53.63	2.2451	16 52 30.8	5.879
7	18 58 25.75	2.4007	19 38 43.7	0.948	7	20 50 8.22	2.2412	16 46 35.4	5.967
8	19 0 49.72	2.3983	19 37 43.3	1.066	8	20 52 22.58	2.2373	16 40 34.8	6.053
9	19 3 13.54	2.3958	19 36 35.8	1.184	9	20 54 36.70	2.2333	16 34 29.1	6.138
10	19 5 37.22	2.3933	19 35 21.2	1.302	10	20 56 50.58	2.2293	16 28 18.2	6.223
11	19 8 0.74	2.3908	19 33 59.6	1.419	11	20 59 4.22	2.2254	16 22 2.3	6.307
12	19 10 24.11	2.3883	19 32 30.9	1.537	12	21 1 17.63	2.2215	16 15 41.4	6.390
13	19 12 47.33	2.3856	19 30 55.2	1.653	13	21 3 30.80	2.2175	16 9 15.5	6.472
14	19 15 10.38	2.3828	19 29 12.6	1.768	14	21 5 43.73	2.2135	16 2 44.7	6.553
15	19 17 33.27	2.3802	19 27 23.0	1.883	15	21 7 56.42	2.2096	15 56 9.1	6.633
16	19 19 56.00	2.3774	19 25 26.6	1.998	16	21 10 8.88	2.2057	15 49 28.7	6.713
17	19 22 18.56	2.3746	19 23 23.2	2.113	17	21 12 21.10	2.2017	15 42 43.5	6.793
18	19 24 40.95	2.3717	19 21 13.0	2.227	18	21 14 33.08	2.1978	15 35 53.6	6.871
19	19 27 3.16	2.3688	19 18 56.0	2.339	19	21 16 44.83	2.1938	15 28 59.0	6.948
20	19 29 25.20	2.3658	19 16 32.3	2.452	20	21 18 56.33	2.1898	15 21 59.9	7.023
21	19 31 47.05	2.3628	19 14 1.8	2.564	21	21 21 7.60	2.1859	15 14 56.3	7.098
22	19 34 8.73	2.3598	19 11 24.6	2.676	22	21 23 18.64	2.1820	15 7 48.2	7.172
23	19 36 30.22	2.3566	19 8 40.7	2.787	23	21 25 29.44	2.1780	15 0 35.6	7.246
24	19 38 51.52	2.3534	S. 19 5 50.2	2.897	24	21 27 40.00	2.1740	S. 14 53 18.6	7.318

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 21.					FRIDAY 23.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	21 27 40.00	2.1740	S. 14 53 18.6	7.318	0	23 7 46.75	2.0063	S. 7 55 19.3	9.760
1	21 29 50.32	2.1701	14 45 57.4	7.390	1	23 9 47.04	2.0034	7 45 32.8	9.791
2	21 32 0.41	2.1662	14 38 31.8	7.461	2	23 11 47.16	2.0006	7 35 44.4	9.820
3	21 34 10.27	2.1623	14 31 2.1	7.530	3	23 13 47.11	1.9978	7 25 54.4	9.848
4	21 36 19.88	2.1583	14 23 28.2	7.600	4	23 15 46.90	1.9952	7 16 2.7	9.875
5	21 38 29.27	2.1545	14 15 50.1	7.668	5	23 17 46.53	1.9925	7 6 9.4	9.902
6	21 40 38.42	2.1506	14 8 8.1	7.734	6	23 19 46.00	1.9898	6 56 14.5	9.928
7	21 42 47.34	2.1467	14 0 22.0	7.802	7	23 21 45.31	1.9872	6 46 18.1	9.952
8	21 44 56.02	2.1428	13 52 31.9	7.867	8	23 23 44.46	1.9846	6 36 20.3	9.976
9	21 47 4.48	2.1391	13 44 38.0	7.931	9	23 25 43.46	1.9821	6 26 21.0	9.999
10	21 49 12.71	2.1352	13 36 40.2	7.995	10	23 27 42.31	1.9796	6 16 20.4	10.022
11	21 51 20.70	2.1313	13 28 38.6	8.057	11	23 29 41.01	1.9771	6 6 18.4	10.043
12	21 53 28.47	2.1276	13 20 33.3	8.119	12	23 31 39.56	1.9747	5 56 15.2	10.064
13	21 55 36.01	2.1238	13 12 24.3	8.180	13	23 33 37.97	1.9723	5 46 10.7	10.084
14	21 57 43.32	2.1200	13 4 11.7	8.241	14	23 35 36.23	1.9699	5 36 5.1	10.103
15	21 59 50.41	2.1163	12 55 55.4	8.300	15	23 37 34.36	1.9676	5 25 58.3	10.122
16	22 1 57.27	2.1125	12 47 35.7	8.358	16	23 39 32.34	1.9653	5 15 50.5	10.139
17	22 4 3.91	2.1088	12 39 12.5	8.415	17	23 41 30.19	1.9631	5 5 41.6	10.157
18	22 6 10.33	2.1052	12 30 45.9	8.472	18	23 43 27.91	1.9609	4 55 31.7	10.172
19	22 8 16.53	2.1015	12 22 15.9	8.528	19	23 45 25.50	1.9587	4 45 20.9	10.188
20	22 10 22.51	2.0978	12 13 42.5	8.583	20	23 47 22.95	1.9565	4 35 9.2	10.203
21	22 12 28.26	2.0941	12 5 6.0	8.636	21	23 49 20.28	1.9545	4 24 56.6	10.216
22	22 14 33.80	2.0906	11 56 26.2	8.689	22	23 51 17.49	1.9524	4 14 43.3	10.229
23	22 16 39.13	2.0870	S. 11 47 43.3	8.741	23	23 53 14.57	1.9503	S. 4 4 29.1	10.242
	THURSDAY 22.					SATURDAY 24.			
0	22 18 44.24	2.0834	S. 11 38 57.3	8.792	0	23 55 11.53	1.9483	S. 3 54 14.3	10.253
1	22 20 49.14	2.0798	11 30 8.3	8.843	1	23 57 8.37	1.9464	3 43 58.8	10.263
2	22 22 53.82	2.0763	11 21 16.2	8.893	2	23 59 5.10	1.9446	3 33 42.7	10.273
3	22 24 58.30	2.0729	11 12 21.2	8.941	3	0 1 1.72	1.9427	3 23 26.0	10.283
4	22 27 2.57	2.0694	11 3 23.3	8.988	4	0 2 58.22	1.9408	3 13 8.8	10.291
5	22 29 6.63	2.0659	10 54 22.6	9.035	5	0 4 54.62	1.9391	3 2 51.1	10.299
6	22 31 10.48	2.0626	10 45 19.1	9.081	6	0 6 50.91	1.9373	2 52 32.9	10.306
7	22 33 14.14	2.0592	10 36 12.9	9.126	7	0 8 47.10	1.9357	2 42 14.4	10.312
8	22 35 17.59	2.0558	10 27 4.0	9.171	8	0 10 43.19	1.9339	2 31 55.5	10.318
9	22 37 20.84	2.0525	10 17 52.4	9.214	9	0 12 39.17	1.9323	2 21 36.3	10.322
10	22 39 23.89	2.0492	10 8 38.3	9.256	10	0 14 35.06	1.9308	2 11 16.9	10.325
11	22 41 26.74	2.0459	9 59 21.7	9.298	11	0 16 30.86	1.9293	2 0 57.3	10.328
12	22 43 29.40	2.0427	9 50 2.6	9.338	12	0 18 26.57	1.9278	1 50 37.5	10.332
13	22 45 31.87	2.0395	9 40 41.1	9.378	13	0 20 22.19	1.9262	1 40 17.5	10.333
14	22 47 34.14	2.0363	9 31 17.2	9.418	14	0 22 17.71	1.9248	1 29 57.5	10.334
15	22 49 36.22	2.0332	9 21 51.0	9.456	15	0 24 13.16	1.9234	1 19 37.4	10.335
16	22 51 38.12	2.0301	9 12 22.5	9.493	16	0 26 8.52	1.9220	1 9 17.3	10.335
17	22 53 39.83	2.0270	9 2 51.8	9.530	17	0 28 3.80	1.9208	0 58 57.2	10.334
18	22 55 41.36	2.0239	8 53 18.9	9.565	18	0 29 59.01	1.9195	0 48 37.2	10.333
19	22 57 42.70	2.0208	8 43 44.0	9.599	19	0 31 54.14	1.9183	0 38 17.3	10.330
20	22 59 43.86	2.0179	8 34 7.0	9.634	20	0 33 49.20	1.9170	0 27 57.6	10.327
21	23 1 44.85	2.0149	8 24 27.9	9.667	21	0 35 44.18	1.9158	0 17 38.1	10.323
22	23 3 45.65	2.0120	8 14 46.9	9.699	22	0 37 39.10	1.9148	S. 0 7 18.9	10.318
23	23 5 46.29	2.0092	8 5 4.0	9.730	23	0 39 33.96	1.9138	N. 0 3 0.0	10.313
24	23 7 46.75	2.0063	S. 7 55 19.3	9.760	24	0 41 28.75	1.9127	N. 0 13 18.6	10.307

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 25.					TUESDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	0 41 28.75	1.9127	N. 0 13 18.6	10.307	0	2 12 49.48	1.9078	N. 8 8 39.6	9.257
1	0 43 23.48	1.9117	0 23 36.8	10.300	1	2 14 43.97	1.9085	8 17 54.0	9.221
2	0 45 18.15	1.9107	0 33 54.6	10.293	2	2 16 38.50	1.9093	8 27 6.1	9.183
3	0 47 12.76	1.9098	0 44 12.0	10.285	3	2 18 33.09	1.9103	8 36 16.0	9.146
4	0 49 7.32	1.9089	0 54 28.8	10.276	4	2 20 27.73	1.9111	8 45 23.6	9.108
5	0 51 1.83	1.9080	1 4 45.1	10.267	5	2 22 22.42	1.9120	8 54 28.9	9.068
6	0 52 56.28	1.9072	1 15 0.8	10.257	6	2 24 17.17	1.9129	9 3 31.8	9.028
7	0 54 50.69	1.9065	1 25 15.9	10.246	7	2 26 11.97	1.9139	9 12 32.3	8.988
8	0 56 45.06	1.9058	1 35 30.3	10.235	8	2 28 6.84	1.9149	9 21 30.4	8.948
9	0 58 39.39	1.9051	1 45 44.1	10.222	9	2 30 1.76	1.9159	9 30 26.1	8.907
10	1 0 33.67	1.9044	1 55 57.0	10.209	10	2 31 56.75	1.9171	9 39 19.2	8.864
11	1 2 27.92	1.9038	2 6 9.2	10.196	11	2 33 51.81	1.9182	9 48 9.8	8.822
12	1 4 22.13	1.9033	2 16 20.5	10.182	12	2 35 46.93	1.9193	9 56 57.8	8.778
13	1 6 16.31	1.9027	2 26 31.0	10.168	13	2 37 42.12	1.9204	10 5 43.2	8.735
14	1 8 10.45	1.9022	2 36 40.6	10.152	14	2 39 37.38	1.9217	10 14 26.0	8.691
15	1 10 4.57	1.9018	2 46 49.2	10.136	15	2 41 32.72	1.9229	10 23 6.1	8.647
16	1 11 58.67	1.9014	2 56 56.9	10.119	16	2 43 28.13	1.9242	10 31 43.6	8.602
17	1 13 52.74	1.9010	3 7 3.5	10.102	17	2 45 23.62	1.9254	10 40 18.3	8.555
18	1 15 46.79	1.9007	3 17 9.1	10.085	18	2 47 19.18	1.9267	10 48 50.2	8.508
19	1 17 40.82	1.9003	3 27 13.7	10.066	19	2 49 14.82	1.9281	10 57 19.3	8.462
20	1 19 34.83	1.9001	3 37 17.0	10.046	20	2 51 10.55	1.9295	11 5 45.6	8.414
21	1 21 28.83	1.8999	3 47 19.2	10.027	21	2 53 6.36	1.9308	11 14 9.0	8.366
22	1 23 22.82	1.8998	3 57 20.2	10.007	22	2 55 2.25	1.9323	11 22 29.5	8.318
23	1 25 16.80	1.8996	N. 4 7 20.0	9.985	23	2 56 58.23	1.9338	N. 11 30 47.1	8.268
	MONDAY 26.					WEDNESDAY 28.			
0	1 27 10.77	1.8994	N. 4 17 18.4	9.963	0	2 58 54.30	1.9352	N. 11 39 1.7	8.219
1	1 29 4.73	1.8993	4 27 15.5	9.941	1	3 0 50.46	1.9368	11 47 13.4	8.169
2	1 30 58.69	1.8993	4 37 11.3	9.918	2	3 2 46.71	1.9383	11 55 22.0	8.118
3	1 32 52.65	1.8993	4 47 5.7	9.894	3	3 4 43.05	1.9398	12 3 27.5	8.067
4	1 34 46.61	1.8994	4 56 58.6	9.870	4	3 6 39.49	1.9414	12 11 30.0	8.016
5	1 36 40.58	1.8995	5 6 50.1	9.846	5	3 8 36.02	1.9430	12 19 29.4	7.963
6	1 38 34.55	1.8996	5 16 40.1	9.820	6	3 10 32.65	1.9448	12 27 25.6	7.910
7	1 40 28.53	1.8997	5 26 28.5	9.794	7	3 12 29.39	1.9464	12 35 18.6	7.856
8	1 42 22.51	1.8998	5 36 15.4	9.768	8	3 14 26.22	1.9480	12 43 8.3	7.802
9	1 44 16.51	1.9002	5 46 0.6	9.740	9	3 16 23.15	1.9498	12 50 54.8	7.748
10	1 46 10.53	1.9005	5 55 44.2	9.712	10	3 18 20.19	1.9515	12 58 38.1	7.693
11	1 48 4.57	1.9008	6 5 26.0	9.683	11	3 20 17.33	1.9533	13 6 18.0	7.637
12	1 49 58.62	1.9010	6 15 6.1	9.654	12	3 22 14.58	1.9551	13 13 54.5	7.581
13	1 51 52.69	1.9014	6 24 44.5	9.624	13	3 24 11.94	1.9568	13 21 27.7	7.524
14	1 53 46.79	1.9018	6 34 21.0	9.594	14	3 26 9.40	1.9587	13 28 57.4	7.468
15	1 55 40.91	1.9022	6 43 55.8	9.563	15	3 28 6.98	1.9606	13 36 23.8	7.410
16	1 57 35.06	1.9027	6 53 28.6	9.532	16	3 30 4.67	1.9624	13 43 46.6	7.351
17	1 59 29.24	1.9033	7 2 59.6	9.500	17	3 32 2.47	1.9643	13 51 5.9	7.293
18	2 1 23.45	1.9038	7 12 28.6	9.467	18	3 34 0.39	1.9663	13 58 21.7	7.234
19	2 3 17.69	1.9043	7 21 55.6	9.433	19	3 35 58.43	1.9683	14 5 34.0	7.174
20	2 5 11.97	1.9050	7 31 20.6	9.399	20	3 37 56.58	1.9702	14 12 42.6	7.113
21	2 7 6.29	1.9056	7 40 43.5	9.365	21	3 39 54.85	1.9722	14 19 47.6	7.053
22	2 9 0.64	1.9063	7 50 4.4	9.330	22	3 41 53.24	1.9742	14 26 48.9	6.991
23	2 10 55.04	1.9070	7 59 23.1	9.293	23	3 43 51.75	1.9762	14 33 46.5	6.929
24	2 12 49.48	1.9078	N. 8 8 39.6	9.257	24	3 45 50.38	1.9782	N. 14 40 40.4	6.867

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 29.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	3 45 50.38	1.9782	N.14 40 40.4	6.867
1	3 47 49.13	1.9803	14 47 30.5	6.804
2	3 49 48.01	1.9823	14 54 16.9	6.741
3	3 51 47.01	1.9844	15 0 59.4	6.677
4	3 53 46.14	1.9866	15 7 38.1	6.613
5	3 55 45.40	1.9887	15 14 12.9	6.548
6	3 57 44.78	1.9908	15 20 43.8	6.483
7	3 59 44.30	1.9930	15 27 10.8	6.416
8	4 1 43.94	1.9952	15 33 33.7	6.349
9	4 3 43.72	1.9974	15 39 52.7	6.283
10	4 5 43.63	1.9996	15 46 7.7	6.216
11	4 7 43.67	2.0018	15 52 18.6	6.147
12	4 9 43.85	2.0041	15 58 25.3	6.078
13	4 11 44.16	2.0063	16 4 28.0	6.010
14	4 13 44.60	2.0085	16 10 26.5	5.940
15	4 15 45.18	2.0108	16 16 20.8	5.871
16	4 17 45.90	2.0132	16 22 11.0	5.801
17	4 19 46.76	2.0154	16 27 56.9	5.729
18	4 21 47.75	2.0177	16 33 38.5	5.658
19	4 23 48.88	2.0201	16 39 15.8	5.586
20	4 25 50.16	2.0224	16 44 48.8	5.514
21	4 27 51.57	2.0247	16 50 17.5	5.441
22	4 29 53.12	2.0271	16 55 41.7	5.368
23	4 31 54.82	2.0294	N.17 1 1.6	5.294

FRIDAY 30.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	4 33 56.65	2.0318	N.17 6 17.0	5.219
1	4 35 58.63	2.0342	17 11 27.9	5.145
2	4 38 0.75	2.0366	17 16 34.4	5.070
3	4 40 3.02	2.0390	17 21 36.3	4.993
4	4 42 5.43	2.0413	17 26 33.6	4.917
5	4 44 7.98	2.0437	17 31 26.3	4.841
6	4 46 10.67	2.0461	17 36 14.5	4.763
7	4 48 13.51	2.0486	17 40 57.9	4.685
8	4 50 16.50	2.0510	17 45 36.7	4.608
9	4 52 19.63	2.0533	17 50 10.8	4.529
10	4 54 22.90	2.0557	17 54 40.2	4.450
11	4 56 26.32	2.0582	17 59 4.8	4.370
12	4 58 29.88	2.0606	18 3 24.6	4.290
13	5 0 33.59	2.0631	18 7 39.6	4.210
14	5 2 37.45	2.0656	18 11 49.8	4.129
15	5 4 41.46	2.0680	18 15 55.1	4.048
16	5 6 45.61	2.0703	18 19 55.5	3.967
17	5 8 49.90	2.0728	18 23 51.1	3.884
18	5 10 54.34	2.0753	18 27 41.6	3.801
19	5 12 58.93	2.0777	18 31 27.2	3.718
20	5 15 3.66	2.0801	18 35 7.8	3.634
21	5 17 8.54	2.0825	18 38 43.3	3.550
22	5 19 13.56	2.0849	18 42 13.8	3.466
23	5 21 18.73	2.0873	18 45 39.2	3.382
24	5 23 24.04	2.0898	N.18 48 59.6	3.297

SATURDAY 31.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	5 23 24.04	2.0898	N.18 48 59.6	3.297
1	5 25 29.50	2.0922	18 52 14.8	3.211
2	5 27 35.10	2.0945	18 55 24.9	3.124
3	5 29 40.84	2.0969	18 58 29.7	3.037
4	5 31 46.73	2.0993	19 1 29.4	2.951
5	5 33 52.76	2.1018	19 4 23.8	2.863
6	5 35 58.94	2.1042	19 7 13.0	2.776
7	5 38 5.26	2.1065	19 9 56.9	2.687
8	5 40 11.72	2.1088	19 12 35.5	2.598
9	5 42 18.32	2.1113	19 15 8.7	2.510
10	5 44 25.07	2.1136	19 17 36.7	2.421
11	5 46 31.95	2.1159	19 19 59.2	2.330
12	5 48 38.98	2.1183	19 22 16.3	2.240
13	5 50 46.15	2.1206	19 24 28.0	2.150
14	5 52 53.45	2.1228	19 26 34.3	2.059
15	5 55 0.89	2.1252	19 28 35.1	1.968
16	5 57 8.47	2.1275	19 30 30.4	1.876
17	5 59 16.19	2.1298	19 32 20.2	1.783
18	6 1 24.04	2.1319	19 34 4.4	1.691
19	6 3 32.02	2.1[illegible]43	19 35 43.1	1.598
20	6 5 40.15	2.1365	19 37 16.2	1.505
21	6 7 48.40	2.1387	19 38 43.7	1.412
22	6 9 56.79	2.1410	19 40 5.6	1.318
23	6 12 5.32	2.1432	N.19 41 21.9	1.224

SUNDAY, APRIL 1.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	6 14 13.97	2.1453	N.19 42 32.5	1.129

PHASES OF THE MOON.

			d	h	m
☽	First Quarter . . .	Mar.	2	21	28.3
○	Full Moon		10	8	17.4
☾	Last Quarter		16	23	57.4
●	New Moon		24	11	51.9

			d	h
☾	Perigee	Mar.	12	16.6
☾	Apogee		28	15.0

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month	Name and Direction of Object		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	69 26 27	3464	70 47 32	3463	72 8 37	3463	73 29 42	3462
	Mars	W.	31 26 48	3400	32 49 5	3397	34 11 25	3394	35 33 49	3390
	Pollux	E.	63 34 20	3149	62 7 10	3150	60 40 1	3153	59 12 55	3155
	Regulus	E.	99 10 25	3072	97 41 49	3075	96 13 12	3078	94 44 35	3076
2	Sun	W.	80 15 37	3449	81 36 58	3445	82 58 24	3441	84 19 54	3435
	Mars	W.	42 26 52	3370	43 49 43	3364	45 12 41	3359	46 35 45	3352
	α Arietis	W.	29 2 32	3764	30 18 12	3700	31 34 59	3644	32 52 40	3594
	Pollux	E.	51 57 44	3158	50 30 44	3158	49 3 44	3158	47 36 45	3158
	Regulus	E.	87 20 59	3065	85 52 7	3060	84 23 9	3056	82 54 6	3052
3	Sun	W.	91 9 10	3401	92 31 25	3393	93 53 50	3383	95 16 26	3374
	Mars	W.	53 33 3	3315	54 56 57	3306	56 21 2	3296	57 45 18	3287
	α Arietis	W.	39 33 49	3402	40 56 3	3372	42 18 51	3344	43 42 11	3317
	Pollux	E.	40 21 50	3160	38 54 53	3162	37 27 59	3164	36 1 7	3168
	Regulus	E.	75 27 9	3020	73 57 21	3013	72 27 24	3004	70 57 16	2996
4	Sun	W.	102 12 15	3319	103 36 4	3307	105 0 7	3295	106 24 24	3282
	Mars	W.	64 49 37	3231	66 15 9	3219	67 40 56	3207	69 6 57	3193
	α Arietis	W.	50 46 17	3199	52 12 28	3177	53 39 4	3155	55 6 7	3135
	Jupiter	W.	26 12 37	3060	27 41 36	3041	29 10 58	3024	30 40 41	3007
	Aldebaran	W.	16 45 25	2947	18 16 44	2935	19 48 18	2923	21 20 8	2911
	Pollux	E.	28 48 24	3210	27 22 27	3228	25 56 51	3250	24 31 41	3279
	Regulus	E.	63 23 44	2946	61 52 23	2934	60 20 47	2922	58 48 56	2910
5	Sun	W.	113 29 53	3210	114 55 50	3194	116 22 6	3178	117 48 41	3163
	Mars	W.	76 21 11	3122	77 48 54	3106	79 16 56	3091	80 45 17	3074
	α Arietis	W.	62 27 27	3035	63 56 56	3016	65 26 49	2998	66 57 5	2978
	Jupiter	W.	38 14 29	2924	39 46 17	2907	41 18 27	2891	42 50 57	2874
	Aldebaran	W.	29 3 19	2845	30 36 49	2830	32 10 38	2815	33 44 46	2800
	Regulus	E.	51 5 41	2843	49 32 9	2830	47 58 20	2815	46 24 11	2800
	Spica	E.	104 47 51	2875	103 15 0	2860	101 41 50	2845	100 8 21	2831
6	Sun	W.	125 6 31	3079	126 35 6	3061	128 4 3	3043	129 33 22	3026
	Mars	W.	88 12 2	2992	89 42 25	2974	91 13 10	2957	92 44 17	2939
	α Arietis	W.	74 34 27	2884	76 7 7	2865	77 40 11	2846	79 13 39	2828
	Jupiter	W.	50 38 55	2789	52 13 37	2772	53 48 42	2754	55 24 10	2737
	Aldebaran	W.	41 40 28	2722	43 16 39	2705	44 53 12	2689	46 30 7	2672
	Regulus	E.	38 28 28	2722	36 52 17	2705	35 15 44	2688	33 38 48	2672
	Spica	E.	92 15 54	2750	90 40 21	2734	89 4 27	2718	87 28 11	2702
7	Mars	W.	100 25 28	2850	101 58 51	2832	103 32 37	2815	105 6 46	2797
	α Arietis	W.	87 6 50	2738	88 42 39	2722	90 18 50	2705	91 55 24	2688
	Jupiter	W.	63 27 19	2649	65 5 7	2631	66 43 20	2614	68 21 56	2596
	Aldebaran	W.	54 40 20	2588	56 19 32	2570	57 59 8	2553	59 39 7	2537
	Spica	E.	79 21 18	2618	77 42 48	2601	76 3 54	2585	74 24 39	2568
8	α Arietis	W.	100 3 41	2610	101 42 23	2595	103 21 25	2581	105 0 46	2568
	Jupiter	W.	76 40 54	2511	78 21 52	2495	80 3 13	2478	81 44 58	2462
	Aldebaran	W.	68 4 55	2453	69 47 14	2436	71 29 57	2420	73 13 3	2404
	Pollux	W.	25 30 58	2754	27 6 26	2705	28 43 0	2661	30 20 33	2621
	Spica	E.	66 2 41	2488	64 21 11	2473	62 39 20	2458	60 57 8	2443

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh	P. L. of Diff.	XVIIIh	P. L. of Diff.	XXIh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	74 50 49	3461	76 11 57	3459	77 33 7	3456	78 54 20	3453
	Mars	W.	36 56 17	3386	38 18 49	3383	39 41 25	3379	41 4 6	3374
	Pollux	E.	57 45 51	3155	56 18 48	3156	54 51 46	3157	53 24 45	3157
	Regulus	E.	93 15 56	3075	91 47 16	3073	90 18 34	3070	88 49 48	3068
2	Sun	W.	85 41 31	3429	87 3 15	3423	88 25 5	3416	89 47 3	3408
	Mars	W.	47 58 57	3345	49 22 16	3339	50 45 43	3332	52 9 18	3323
	α Arietis	W.	34 11 27	3548	35 30 58	3507	36 51 14	3470	38 12 12	3435
	Pollux	E.	46 9 45	3158	44 42 45	3158	43 15 46	3158	41 48 47	3160
	Regulus	E.	81 24 57	3046	79 55 41	3041	78 26 19	3034	76 56 48	3027
3	Sun	W.	96 39 12	3364	98 2 9	3353	99 25 19	3343	100 48 41	3332
	Mars	W.	59 9 45	3277	60 34 24	3266	61 59 15	3255	63 24 19	3243
	α Arietis	W.	45 6 3	3292	46 30 24	3267	47 55 14	3243	49 20 32	3220
	Pollux	E.	34 34 19	3173	33 7 37	3179	31 41 2	3187	30 14 37	3197
	Regulus	E.	69 26 58	2986	67 56 28	2977	66 25 46	2967	64 54 52	2956
4	Sun	W.	107 48 57	3268	109 13 46	3254	110 38 51	3239	112 4 14	3225
	Mars	W.	70 33 15	3180	71 59 48	3165	73 26 39	3152	74 53 46	3137
	α Arietis	W.	56 33 34	3115	58 1 25	3094	59 29 42	3075	60 58 22	3055
	Jupiter	W.	32 10 45	2990	33 41 10	2974	35 11 56	2958	36 43 2	2941
	Aldebaran	W.	22 52 13	2898	24 24 34	2886	25 57 11	2872	27 30 6	2858
	Pollux	E.	23 7 5	3317	21 43 13	3364	20 20 15	3426	18 58 28	3507
	Regulus	E.	57 16 50	2897	55 44 28	2884	54 11 49	2872	52 38 54	2858
5	Sun	W.	119 15 35	3147	120 42 48	3129	122 10 22	3113	123 38 16	3096
	Mars	W.	82 13 58	3059	83 42 58	3042	85 12 19	3026	86 42 0	3009
	α Arietis	W.	68 27 46	2958	69 58 51	2940	71 30 19	2921	73 2 11	2902
	Jupiter	W.	44 23 49	2858	45 57 2	2840	47 30 38	2824	49 4 35	2806
	Aldebaran	W.	35 19 14	2785	36 54 2	2769	38 29 10	2754	40 4 38	2738
	Regulus	E.	44 49 43	2785	43 14 55	2769	41 39 47	2753	40 4 18	2738
	Spica	E.	98 34 33	2815	97 0 24	2799	95 25 55	2783	93 51 5	2767
6	Sun	W.	131 3 3	3008	132 33 6	2990	134 3 31	2973	135 34 18	2954
	Mars	W.	94 15 46	2921	95 47 38	2904	97 19 52	2886	98 52 29	2869
	α Arietis	W.	80 47 30	2810	82 21 45	2792	83 56 23	2774	85 31 25	2756
	Jupiter	W.	57 0 1	2720	58 36 15	2702	60 12 52	2684	61 49 54	2666
	Aldebaran	W.	48 7 24	2655	49 45 4	2639	51 23 6	2621	53 1 32	2605
	Regulus	E.	32 1 31	2655	30 23 51	2639	28 45 49	2621	27 7 23	2604
	Spica	E.	85 51 34	2684	84 14 33	2668	82 37 11	2652	80 59 26	2635
7	Mars	W.	106 41 18	2779	108 16 13	2762	109 51 31	2744	111 27 12	2727
	α Arietis	W.	93 32 20	2672	95 9 38	2655	96 47 18	2640	98 25 19	2624
	Jupiter	W.	70 0 56	2579	71 40 20	2561	73 20 8	2545	75 0 19	2528
	Aldebaran	W.	61 19 29	2519	63 0 16	2503	64 41 25	2486	66 22 58	2469
	Spica	E.	72 45 0	2552	71 4 59	2535	69 24 35	2520	67 43 49	2504
8	α Arietis	W.	106 40 25	2555	108 20 22	2543	110 0 35	2532	111 41 4	2521
	Jupiter	W.	83 27 5	2446	85 9 34	2430	86 52 26	2415	88 35 39	2400
	Aldebaran	W.	74 56 32	2389	76 40 23	2373	78 24 36	2358	80 9 11	2343
	Pollux	W.	31 58 59	2585	33 38 14	2553	35 18 13	2523	36 58 55	2495
	Spica	E.	59 14 35	2429	57 31 41	2415	55 48 28	2402	54 4 56	2389

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	III^h	P. L. of Diff.	VI^h	P. L. of Diff.	IX^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	JUPITER	W.	90 19 13	2385	92 3 9	2372	93 47 24	2357	95 32 0	2344
	Aldebaran	W.	81 54 8	2329	83 39 25	2315	85 25 3	2300	87 11 2	2287
	Pollux	W.	38 40 15	2470	40 22 11	2446	42 4 40	2423	43 47 42	2402
	Spica	E.	52 21 5	2377	50 36 57	2365	48 52 32	2354	47 7 51	2344
	Antares	E.	98 14 16	2390	96 30 27	2375	94 46 17	2362	93 1 47	2348
10	Aldebaran	W.	96 5 35	2227	97 53 22	2216	99 41 25	2206	101 29 44	2197
	Pollux	W.	52 29 48	2314	54 15 27	2300	56 1 26	2286	57 47 46	2273
	Regulus	W.	15 56 56	2227	17 44 43	2217	19 32 46	2206	21 21 4	2197
	Spica	E.	38 21 10	2307	36 35 21	2303	34 49 26	2302	33 3 29	2302
	Antares	E.	84 14 37	2288	82 28 20	2278	80 41 48	2268	78 55 2	2260
11	Pollux	W.	66 43 42	2222	68 31 37	2214	70 19 44	2207	72 8 1	2200
	Regulus	W.	30 25 54	2157	32 15 27	2150	34 5 10	2145	35 55 1	2140
	Antares	E.	69 58 17	2226	68 10 28	2221	66 22 32	2217	64 34 30	2215
12	Pollux	W.	81 11 32	2179	83 0 31	2177	84 49 33	2176	86 38 37	2175
	Regulus	W.	45 5 56	2122	46 56 21	2120	48 46 49	2120	50 37 18	2119
	Antares	E.	55 33 43	2213	53 45 35	2216	51 57 32	2220	50 9 34	2225
	α Aquilæ	E.	102 34 34	2664	100 57 6	2656	99 19 27	2649	97 41 39	2644
13	Pollux	W.	95 43 57	2181	97 32 54	2184	99 21 46	2188	101 10 32	2192
	Regulus	W.	59 49 40	2124	61 40 2	2127	63 30 20	2130	65 20 33	2134
	Antares	E.	41 12 14	2270	39 25 31	2285	37 39 10	2302	35 53 14	2322
	α Aquilæ	E.	89 31 37	2642	87 53 39	2645	86 15 45	2651	84 37 59	2658
14	Regulus	W.	74 30 2	2159	76 19 32	2165	78 8 53	2171	79 58 4	2178
	Spica	W.	21 40 54	2365	23 25 19	2344	25 10 15	2328	26 55 34	2316
	Antares	E.	27 12 22	2482	25 30 43	2535	23 50 18	2598	22 11 20	2677
	α Aquilæ	E.	76 32 6	2714	74 55 44	2730	73 19 44	2747	71 44 6	2766
	SUN	E.	129 48 7	2472	128 6 15	2479	126 24 32	2485	124 42 58	2493
15	Regulus	W.	89 1 14	2218	90 49 15	2226	92 37 4	2235	94 24 40	2243
	Spica	W.	35 44 53	2300	37 30 52	2302	39 16 48	2305	41 2 40	2310
	α Aquilæ	E.	63 53 3	2890	62 20 31	2922	60 48 40	2955	59 17 31	2992
	SUN	E.	116 17 51	2534	114 37 25	2543	112 57 11	2553	111 17 11	2562
16	Spica	W.	49 50 4	2341	51 35 4	2348	53 19 53	2356	55 4 31	2365
	α Aquilæ	E.	51 54 22	3225	50 28 42	3283	49 4 11	3348	47 40 55	3419
	Fomalhaut	E.	83 1 14	2566	81 21 32	2578	79 42 7	2592	78 3 1	2605
	SUN	E.	103 0 34	2613	101 21 57	2624	99 43 35	2635	98 5 28	2646
17	Spica	W.	63 44 31	2410	65 27 52	2419	67 11 0	2429	68 53 53	2438
	Antares	W.	19 37 17	2927	21 9 2	2857	22 42 16	2803	24 16 40	2763
	Fomalhaut	E.	69 52 28	2685	68 15 28	2703	66 38 52	2722	65 2 41	2741
	SUN	E.	89 58 36	2702	88 21 58	2714	86 45 36	2725	85 9 29	2736
18	Spica	W.	77 24 55	2488	79 6 25	2498	80 47 42	2508	82 28 44	2517
	Antares	W.	32 18 32	2665	33 55 59	2658	35 33 36	2653	37 11 19	2650
	Fomalhaut	E.	57 8 43	2856	55 35 28	2883	54 2 47	2912	52 30 44	2942
	SUN	E.	77 12 39	2793	75 38 2	2804	74 3 39	2815	72 29 31	2827

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	JUPITER	W.	97 16 55	2332	99 2 8	2319	100 47 40	2307	102 33 29	2296
	Aldebaran	W.	88 57 20	2275	90 43 56	2262	92 30 52	2250	94 18 5	2239
	Pollux	W.	45 31 14	2382	47 15 14	2364	48 59 40	2346	50 44 32	2330
	Spica	E.	45 22 56	2335	43 37 47	2326	41 52 25	2318	40 6 52	2312
	Antares	E.	91 16 58	2335	89 31 49	2322	87 46 22	2311	86 0 38	2299
10	Aldebaran	W.	103 18 16	2188	105 7 2	2179	106 56 1	2171	108 45 12	2163
	Pollux	W.	59 34 25	2262	61 21 21	2251	63 8 33	2240	64 56 1	2231
	Regulus	W.	23 9 36	2188	24 58 22	2179	26 47 21	2171	28 36 32	2164
	Spica	E.	31 17 32	2304	29 31 38	2309	27 45 52	2318	26 0 18	2331
	Antares	E.	77 8 3	2252	75 20 52	2244	73 33 30	2237	71 45 58	2231
11	Pollux	W.	73 56 28	2194	75 45 4	2190	77 33 47	2185	79 22 37	2182
	Regulus	W.	37 45 0	2135	39 35 6	2131	41 25 18	2128	43 15 35	2125
	Antares	E.	62 46 24	2213	60 58 15	2212	59 10 5	2211	57 21 53	2212
12	Pollux	W.	88 27 43	2175	90 16 49	2175	92 5 54	2177	93 54 57	2179
	Regulus	W.	52 27 48	2119	54 18 18	2120	56 8 47	2120	57 59 15	2122
	Antares	E.	48 21 43	2231	46 34 2	2239	44 46 32	2247	42 59 15	2258
	α Aquilæ	E.	96 3 44	2641	94 25 44	2639	92 47 42	2638	91 9 39	2639
13	Pollux	W.	102 59 12	2197	104 47 44	2202	106 36 8	2208	108 24 23	2215
	Regulus	W.	67 10 41	2138	69 0 42	2142	70 50 37	2147	72 40 24	2153
	Antares	E.	34 7 46	2344	32 22 51	2371	30 38 34	2402	28 55 2	2438
	α Aquilæ	E.	83 0 23	2666	81 22 57	2675	79 45 44	2687	78 8 47	2699
14	Regulus	W.	81 47 4	2185	83 35 54	2193	85 24 32	2200	87 12 59	2209
	Spica	W.	28 41 11	2308	30 26 59	2303	32 12 54	2300	33 58 53	2300
	Antares	E.	20 34 10	2776	18 59 11	2904	17 26 57	3072	15 58 13	3296
	α Aquilæ	E.	70 8 54	2788	68 34 10	2810	66 59 55	2835	65 26 12	2861
	SUN	E.	123 1 35	2500	121 20 22	2508	119 39 20	2516	117 58 29	2525
15	Regulus	W.	96 12 3	2253	97 59 12	2263	99 46 6	2272	101 32 47	2282
	Spica	W.	42 48 25	2315	44 34 3	2320	46 19 33	2327	48 4 53	2333
	α Aquilæ	E.	57 47 8	3031	56 17 34	3074	54 48 52	3120	53 21 7	3170
	SUN	E.	109 37 24	2572	107 57 50	2583	106 18 31	2592	104 39 25	2603
16	Spica	W.	56 48 56	2373	58 33 9	2382	60 17 10	2391	62 0 57	2401
	α Aquilæ	E.	46 19 0	3496	44 58 31	3581	43 39 36	3674	42 22 21	3776
	Fomalhaut	E.	76 24 13	2620	74 45 45	2635	73 7 38	2651	71 29 52	2667
	SUN	E.	96 27 36	2657	94 49 58	2668	93 12 35	2680	91 35 28	2691
17	Spica	W.	70 36 33	2448	72 19 0	2458	74 1 12	2468	75 43 10	2477
	Antares	W.	25 51 56	2732	27 27 54	2708	29 4 24	2689	30 41 19	2675
	Fomalhaut	E.	63 26 56	2762	61 51 38	2784	60 16 49	2807	58 42 30	2831
	SUN	E.	83 33 37	2747	81 58 0	2759	80 22 38	2770	78 47 31	2782
18	Spica	W.	84 9 33	2528	85 50 8	2538	87 30 29	2548	89 10 36	2557
	Antares	W.	38 49 6	2648	40 26 56	2649	42 4 45	2650	43 42 32	2652
	Fomalhaut	E.	50 59 18	2975	49 28 34	3010	47 58 33	3047	46 29 18	3087
	SUN	E.	70 55 38	2838	69 21 59	2849	67 48 34	2859	66 15 23	2871

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	III^h	P. L. of Diff.	VI^h	P. L. of Diff.	IX^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
19	Spica	W.	90 50 30	2567	92 30 10	2577	94 9 37	2587	95 48 50	2597
	Antares	W.	45 20 17	2655	46 57 58	2659	48 35 33	2663	50 13 3	2667
	Fomalhaut	E.	45 0 52	3131	43 33 20	3178	42 6 44	3231	40 41 11	3287
	SUN	E.	64 42 27	2882	63 9 45	2893	61 37 17	2903	60 5 2	2915
20	Antares	W.	58 18 49	2696	59 55 34	2702	61 32 11	2710	63 8 38	2717
	SATURN	E.	31 51 18	2653	30 13 35	2663	28 36 5	2672	26 58 47	2681
	SUN	E.	52 27 14	2968	50 56 21	2978	49 25 41	2989	47 55 14	3000
21	Antares	W.	71 8 33	2753	72 44 3	2760	74 19 23	2768	75 54 32	2776
	SATURN	E.	18 55 20	2726	17 19 14	2735	15 43 20	2743	14 7 37	2752
	SUN	E.	40 26 19	3052	38 57 11	3064	37 28 17	3074	35 59 36	3086
22	Antares	W.	83 47 47	2815	85 21 55	2824	86 55 52	2832	88 29 39	2840
	SUN	E.	28 39 40	3145	27 12 25	3158	25 45 25	3172	24 18 42	3186
26	SUN	W.	17 24 31	3457	18 45 43	3453	20 7 0	3450	21 28 20	3448
	JUPITER	E.	40 59 32	3092	39 31 13	3101	38 3 4	3109	36 35 5	3118
	Aldebaran	E.	46 32 35	2998	45 2 20	3005	43 32 13	3010	42 2 13	3016
	Pollux	E.	90 41 31	3052	89 12 23	3059	87 43 23	3065	86 14 30	3070
27	SUN	W.	28 15 3	3454	29 36 19	3456	30 57 32	3458	32 18 43	3461
	JUPITER	E.	29 17 50	3163	27 50 57	3174	26 24 17	3186	24 57 51	3198
	Aldebaran	E.	34 33 55	3043	33 4 35	3047	31 35 20	3052	30 6 11	3055
	Pollux	E.	78 51 51	3098	77 23 39	3104	75 55 34	3109	74 27 35	3113
28	SUN	W.	39 4 0	3471	40 24 57	3472	41 45 52	3473	43 6 46	3475
	Pollux	E.	67 9 4	3136	65 41 38	3139	64 14 16	3143	62 46 59	3147
	Regulus	E.	102 49 58	3071	101 21 13	3073	99 52 30	3076	98 23 51	3077
29	SUN	W.	49 51 1	3476	51 11 52	3475	52 32 44	3474	53 53 37	3472
	MARS	W.	19 34 54	3509	20 55 8	3489	22 15 44	3474	23 36 37	3461
	Pollux	E.	55 31 35	3163	54 4 41	3166	52 37 51	3168	51 11 4	3171
	Regulus	E.	91 0 57	3081	89 32 24	3081	88 3 51	3081	86 35 18	3079
30	SUN	W.	60 38 38	3458	61 59 49	3455	63 21 3	3450	64 42 23	3445
	MARS	W.	30 24 23	3409	31 46 29	3400	33 8 46	3391	34 31 13	3383
	Pollux	E.	43 57 58	3185	42 31 31	3189	41 5 8	3193	39 38 50	3196
	Regulus	E.	79 12 1	3068	77 43 12	3065	76 14 19	3061	74 45 22	3056
31	SUN	W.	71 30 36	3414	72 52 37	3406	74 14 47	3398	75 37 6	3389
	MARS	W.	41 25 54	3338	42 49 22	3329	44 13 0	3319	45 36 50	3309
	JUPITER	W.	18 13 7	3222	19 38 50	3198	21 5 2	3177	22 31 39	3158
	Pollux	E.	32 28 49	3230	31 3 15	3242	29 37 55	3256	28 12 52	3272
	Regulus	E.	67 19 3	3029	65 49 26	3021	64 19 39	3014	62 49 44	3006

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
19	Spica	W.	97 27 49	2607	99 6 35	2616	100 45 8	2626	102 23 27	2636
	Antares	W.	51 50 27	2672	53 27 44	2678	55 4 54	2684	56 41 55	2690
	Fomalhaut	E.	39 16 44	3350	37 53 30	3419	36 31 35	3497	35 11 7	3583
	SUN	E.	58 33 2	2925	57 1 15	2935	55 29 41	2946	53 58 21	2957
20	Antares	W.	64 44 56	2723	66 21 5	2731	67 57 4	2738	69 32 53	2745
	SATURN	E.	25 21 41	2690	23 44 48	2699	22 8 6	2708	20 31 37	2717
	SUN	E.	46 25 1	3010	44 55 1	3021	43 25 14	3031	41 55 40	3042
21	Antares	W.	77 29 32	2784	79 4 21	2792	80 39 0	2799	82 13 29	2807
	SATURN	E.	12 32 6	2761	10 56 47	2769	9 21 39	2778	7 46 42	2787
	SUN	E.	34 31 9	3097	33 2 56	3108	31 34 56	3120	30 7 11	3132
22	Antares	W.	90 3 15	2848	91 36 41	2856	93 9 56	2865	94 43 0	2873
	SUN	E.	22 52 16	3201	21 26 8	3219	20 0 21	3237	18 34 56	3258
26	SUN	W.	22 49 42	3448	24 11 4	3449	25 32 25	3450	26 53 45	3452
	JUPITER	E.	35 7 17	3126	33 39 39	3134	32 12 11	3144	30 44 55	3153
	Aldebaran	E.	40 32 20	3022	39 2 34	3027	37 32 54	3033	36 3 22	3037
	Pollux	E.	84 45 44	3076	83 17 5	3082	81 48 34	3087	80 20 9	3093
27	SUN	W.	33 39 51	3463	35 0 57	3465	36 22 0	3467	37 43 1	3469
	JUPITER	E.	23 31 39	3211	22 5 43	3227	20 40 6	3245	19 14 50	3266
	Aldebaran	E.	28 37 6	3060	27 8 7	3063	25 39 12	3066	24 10 21	3070
	Pollux	E.	72 59 41	3119	71 31 54	3123	70 4 12	3127	68 36 35	3132
28	SUN	W.	44 27 38	3476	45 48 29	3476	47 9 20	3477	48 30 10	3476
	Pollux	E.	61 19 46	3150	59 52 37	3154	58 25 33	3157	56 58 32	3160
	Regulus	E.	96 55 13	3078	95 26 37	3080	93 58 3	3081	92 29 30	3081
29	SUN	W.	55 14 32	3471	56 35 29	3468	57 56 29	3465	59 17 32	3462
	MARS	W.	24 57 45	3449	26 19 6	3438	27 40 40	3427	29 2 26	3417
	Pollux	E.	49 44 20	3174	48 17 40	3177	46 51 3	3179	45 24 29	3182
	Regulus	E.	85 6 43	3078	83 38 6	3076	82 9 27	3074	80 40 45	3072
30	SUN	W.	66 3 49	3440	67 25 20	3434	68 46 58	3428	70 8 43	3421
	MARS	W.	35 53 49	3374	37 16 35	3365	38 39 31	3356	40 2 38	3348
	Pollux	E.	38 12 36	3201	36 46 28	3207	35 20 27	3214	33 54 34	3221
	Regulus	E.	73 16 19	3052	71 47 10	3047	70 17 55	3041	68 48 33	3035
31	SUN	W.	76 59 35	3380	78 22 14	3371	79 45 4	3360	81 8 6	3350
	MARS	W.	47 0 51	3299	48 25 4	3288	49 49 30	3277	51 14 9	3265
	JUPITER	W.	23 58 39	3140	25 26 0	3123	26 53 42	3107	28 21 43	3092
	Pollux	E.	26 48 8	3293	25 23 48	3319	23 59 58	3352	22 36 46	3393
	Regulus	E.	61 19 38	2998	59 49 23	2989	58 18 56	2980	56 48 18	2970

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S					Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Subtracted from Apparent Time.	Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.			
		h m s	s	° ′ ″	″	′ ″	s	m s	s
SUN.	1	0 39 54.07	9.098	N. 4 17 49.2	+ 57.98	16 1.88	64.47	4 8.95	0.757
Mon.	2	0 43 32.45	9.102	4 40 58.2	57.77	16 1.61	64.48	3 50.84	0.753
Tues.	3	0 47 10.94	9.106	5 4 2.0	57.55	16 1.34	64.50	3 32.82	0.748
Wed.	4	0 50 49.54	9.111	5 27 0.4	+ 57.31	16 1.08	64.52	3 14.92	0.743
Thur.	5	0 54 28.27	9.117	5 49 53.0	57.06	16 0.81	64.54	2 57.16	0.737
Frid.	6	0 58 7.16	9.125	6 12 39.3	56.80	16 0.54	64.56	2 39.53	0.730
Sat.	7	1 1 46.24	9.133	6 35 19.3	+ 56.52	16 0.26	64.60	2 22.10	0.722
SUN.	8	1 5 25.52	9.142	6 57 52.4	56.23	15 59.99	64.64	2 4.88	0.713
Mon.	9	1 9 5.02	9.152	7 20 18.5	55.93	15 59.71	64.68	1 47.87	0.703
Tues.	10	1 12 44.75	9.163	7 42 37.0	+ 55.61	15 59.44	64.72	1 31.09	0.693
Wed.	11	1 16 24.76	9.174	8 4 47.7	55.28	15 59.17	64.76	1 14.60	0.682
Thur.	12	1 20 5.07	9.186	8 26 50.3	54.93	15 58.90	64.80	0 58.40	0.669
Frid.	13	1 23 45.68	9.200	8 48 44.7	+ 54.57	15 58.62	64.84	0 42.50	0.655
Sat.	14	1 27 26.62	9.214	9 10 30.3	54.20	15 58.34	64.89	0 26.93	0.641
SUN.	15	1 31 7.91	9.229	9 32 6.9	53.83	15 58.06	64.94	0 11.71	0.627
Mon.	16	1 34 49.56	9.244	9 53 34.1	+ 53.43	15 57.79	64.99	0 3.15	0.612
Tues.	17	1 38 31.58	9.260	10 14 51.7	53.02	15 57.52	65.04	0 17.65	0.596
Wed.	18	1 42 14.00	9.276	10 35 59.1	52.60	15 57.25	65.09	0 31.75	0.579
Thur.	19	1 45 56.82	9.293	10 56 56.3	+ 52.16	15 56.98	65.15	0 45.43	0.562
Frid.	20	1 49 40.07	9.311	11 17 42.7	51.70	15 56.71	65.21	0 58.71	0.544
Sat.	21	1 53 23.73	9.329	11 38 18.0	51.23	15 56.45	65.27	1 11.56	0.526
SUN.	22	1 57 7.83	9.347	11 58 41.9	+ 50.75	15 56.19	65.34	1 23.98	0.508
Mon.	23	2 0 52.38	9.366	12 18 54.2	50.25	15 55.94	65.40	1 35.96	0.489
Tues.	24	2 4 37.39	9.385	12 38 54.4	49.74	15 55.69	65.47	1 47.47	0.470
Wed.	25	2 8 22.85	9.405	12 58 42.0	+ 49.22	15 55.44	65.54	1 58.52	0.451
Thur.	26	2 12 8.79	9.424	13 18 16.9	48.68	15 55.19	65.61	2 9.11	0.431
Frid.	27	2 15 55.22	9.444	13 37 38.7	48.12	15 54.94	65.68	2 19.21	0.411
Sat.	28	2 19 42.13	9.465	13 56 47.0	+ 47.56	15 54.70	65.75	2 28.83	0.391
SUN.	29	2 23 29.53	9.486	14 15 41.5	46.98	15 54.46	65.82	2 37.96	0.370
Mon.	30	2 27 17.43	9.508	14 34 21.9	46.39	15 54.22	65.90	2 46.58	0.349
Tues.	31	2 31 5.85	9.529	N. 14 52 48.0	+ 45.78	15 53.99	65.98	2 54.70	0.328

NOTE.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.18$ from the sidereal time. The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Apparent Declination.	THE SUN'S Diff. for 1 Hour.	Equation of Time, to be Subtracted from / Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
SUN.	1	0 39 53.44	9.100	N. 4 17 45.2	+57.99	4 9.00	0.757	0 35 44.44
Mon.	2	0 43 31.87	9.104	4 40 54.5	57.78	3 50.88	0.753	0 39 40.99
Tues.	3	0 47 10.40	9.108	5 3 58.6	57.56	3 32.86	0.748	0 43 37.54
Wed.	4	0 50 49.05	9.113	5 26 57.3	+57.32	3 14.96	0.743	0 47 34.09
Thur.	5	0 54 27.83	9.119	5 49 50.2	57.07	2 57.19	0.737	0 51 30.64
Frid.	6	0 58 6.76	9.126	6 12 36.8	56.81	2 39.56	0.730	0 55 27.20
Sat.	7	1 1 45.88	9.134	6 35 17.0	+56.53	2 22.13	0.722	0 59 23.75
SUN.	8	1 5 25.20	9.143	6 57 50.4	56.24	2 4.90	0.713	1 3 20.30
Mon.	9	1 9 4.74	9.153	7 20 16.7	55.94	1 47.89	0.703	1 7 16.85
Tues.	10	1 12 44.52	9.164	7 42 35.5	+55.62	1 31.11	0.693	1 11 13.41
Wed.	11	1 16 24.57	9.175	8 4 46.5	55.29	1 14.61	0.682	1 15 9.96
Thur.	12	1 20 4.92	9.187	8 26 49.4	54.94	0 58.41	0.669	1 19 6.51
Frid.	13	1 23 45.57	9.201	8 48 44.0	+54.58	0 42.51	0.655	1 23 3.06
Sat.	14	1 27 26.55	9.215	9 10 29.9	54.21	0 26.93	0.641	1 26 59.62
SUN.	15	1 31 7.88	9.230	9 32 6.7	53.83	0 11.71	0.627	1 30 56.17
Mon.	16	1 34 49.57	9.245	9 53 34.2	+53.44	0 3.15	0.612	1 34 52.72
Tues.	17	1 38 31.63	9.261	10 14 52.0	53.03	0 17.65	0.596	1 38 49.28
Wed.	18	1 42 14.08	9.277	10 35 59.6	52.61	0 31.75	0.579	1 42 45.83
Thur.	19	1 45 56.94	9.294	10 56 57.0	+52.17	0 45.44	0.562	1 46 42.38
Frid.	20	1 49 40.22	9.312	11 17 43.6	51.71	0 58.72	0.544	1 50 38.94
Sat.	21	1 53 23.92	9.330	11 38 19.1	51.24	1 11.57	0.526	1 54 35.49
SUN.	22	1 57 8.05	9.348	11 58 43.3	+50.76	1 23.99	0.508	1 58 32.04
Mon.	23	2 0 52.63	9.367	12 18 55.6	50.26	1 35.97	0.489	2 2 28.60
Tues.	24	2 4 37.67	9.386	12 38 55.9	49.75	1 47.48	0.470	2 6 25.15
Wed.	25	2 8 23.16	9.406	12 58 43.6	+49.23	1 58.54	0.451	2 10 21.70
Thur.	26	2 12 9.13	9.425	13 18 18.8	48.69	2 9.13	0.431	2 14 18.26
Frid.	27	2 15 55.58	9.445	13 37 40.6	48.13	2 19.23	0.411	2 18 14.81
Sat.	28	2 19 42.51	9.466	13 56 49.0	+47.56	2 28.85	0.391	2 22 11.36
SUN.	29	2 23 29.94	9.487	14 15 43.6	46.98	2 37.98	0.370	2 26 7.92
Mon.	30	2 27 17.87	9.508	14 34 24.1	46.39	2 46.60	0.349	2 30 4.47
Tues.	31	2 31 6.31	9.529	N. 14 52 50.2	+45.78	2 54.72	0.328	2 34 1.03

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

Diff. for 1 Hour,
$+9^s.8565$.
(Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	91	10 51 20.4	51 20.0	147.95	— 0.24	9.999 8271	+ 50.9	23 20 25.51
2	92	11 50 30.0	50 29.5	147.85	0.14	9.999 9493	50.9	23 16 29.60
3	93	12 49 37.3	49 36.7	147.75	— 0.03	0.000 0714	50.9	23 12 33.70
4	94	13 48 42.2	48 41.5	147.65	+ 0.10	0.000 1936	+ 50.9	23 8 37.79
5	95	14 47 44.8	47 44.0	147.56	0.24	0.000 3159	51.0	23 4 41.89
6	96	15 46 45.2	46 44.3	147.47	0.36	0.000 4384	51.1	23 0 45.98
7	97	16 45 43.3	45 42.4	147.38	+ 0.47	0.000 5613	+ 51.3	22 56 50.07
8	98	17 44 39.3	44 38.3	147.29	0.56	0.000 6845	51.4	22 52 54.17
9	99	18 43 33.3	43 32.2	147.21	0.63	0.000 8081	51.6	22 48 58.26
10	100	19 42 25.2	42 24.0	147.13	+ 0.67	0.000 9322	+ 51.7	22 45 2.35
11	101	20 41 15.3	41 14.0	147.05	0.67	0.001 0565	51.8	22 41 6.45
12	102	21 40 3.5	40 2.1	146.97	0.65	0.001 1810	51.9	22 37 10.54
13	103	22 38 50.0	38 48.5	146.90	+ 0.60	0.001 3055	+ 51.9	22 33 14.63
14	104	23 37 34.7	37 33.1	146.82	0.51	0.001 4300	51.8	22 29 18.73
15	105	24 36 17.8	36 16.1	146.74	0.40	0.001 5541	51.6	22 25 22.82
16	106	25 34 59.2	34 57.5	146.68	+ 0.27	0.001 6778	+ 51.4	22 21 26.91
17	107	26 33 39.0	33 37.2	146.62	0.14	0.001 8008	51.1	22 17 31.00
18	108	27 32 17.1	32 15.2	146.55	+ 0.01	0.001 9230	50.7	22 13 35.10
19	109	28 30 53.5	30 51.5	146.48	— 0.11	0.002 0443	+ 50.3	22 9 39.19
20	110	29 29 28.2	29 26.1	146.41	0.23	0.002 1645	49.9	22 5 43.28
21	111	30 28 1.2	27 58.9	146.33	0.33	0.002 2836	49.4	22 1 47.38
22	112	31 26 32.3	26 29.9	146.26	— 0.41	0.002 4015	+ 48.8	21 57 51.47
23	113	32 25 1.7	24 59.2	146.18	0.47	0.002 5180	48.3	21 53 55.56
24	114	33 23 29.1	23 26.5	146.11	0.51	0.002 6333	47.7	21 49 59.65
25	115	34 21 54.7	21 52.0	146.03	— 0.52	0.002 7472	+ 47.2	21 46 3.74
26	116	35 20 18.4	20 15.6	145.95	0.49	0.002 8597	46.6	21 42 7.84
27	117	36 18 40.0	18 37.1	145.86	0.44	0.002 9709	46.1	21 38 11.93
28	118	37 16 59.8	16 56.7	145.78	— 0.37	0.003 0808	+ 45.5	21 34 16.02
29	119	38 15 17.5	15 14.3	145.70	0.28	0.003 1894	45.0	21 30 20.11
30	120	39 13 33.2	13 29.9	145.61	0.17	0.003 2967	44.5	21 26 24.20
31	121	40 11 46.8	11 43.4	145.53	— 0.06	0.003 4029	+ 44.0	21 22 28.30

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ′ are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour, — $9^s.8296$. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	' "	' "	' "	"	' "	"	h m	m	d
1	14 59.2	15 3.8	54 54.3	+ 1.32	55 11.3	+ 1.51	5 50.1	2.06	7.5
2	15 9.1	15 15.0	55 30.7	1.70	55 52.3	1.88	6 40.2	2.11	8.5
3	15 21.5	15 28.4	56 16.0	2.05	56 41.5	2.19	7 31.3	2.15	9.5
4	15 35.7	15 43.3	57 8.3	+ 2.30	57 36.2	+ 2.36	8 23.0	2.17	10.5
5	15 51.1	15 58.8	58 4.7	2.38	58 33.1	2.35	9 15.2	2.18	11.5
6	16 6.4	16 13.6	59 0.9	2.27	59 27.4	2.13	10 7.8	2.20	12.5
7	16 20.3	16 26.3	59 51.9	+ 1.94	60 13.7	+ 1.69	11 0.8	2.23	13.5
8	16 31.3	16 35.3	60 32.2	1.39	60 46.9	1.05	11 54.7	2.27	14.5
9	16 38.1	16 39.7	60 57.3	+ 0.68	61 3.3	+ 0.30	12 49.8	2.33	15.5
10	16 40.1	16 39.2	61 4.5	− 0.08	61 1.3	− 0.45	13 46.5	2.39	16.5
11	16 37.1	16 33.9	60 53.6	0.80	60 42.0	1.12	14 44.6	2.44	17.5
12	16 29.8	16 24.9	60 26.9	1.39	60 8.8	1.61	15 43.6	2.46	18.5
13	16 19.4	16 13.3	59 48.4	− 1.78	59 26.2	− 1.90	16 42.5	2.43	19.5
14	16 6.9	16 0.4	59 2.9	1.97	58 38.9	2.01	17 40.2	2.36	20.5
15	15 53.9	15 47.4	58 14.8	2.01	57 50.9	1.98	18 35.5	2.25	21.5
16	15 41.0	15 34.9	57 27.6	− 1.92	57 5.2	− 1.83	19 27.9	2.12	22.5
17	15 29.1	15 23.6	56 43.8	1.73	56 23.7	1.63	20 17.4	2.01	23.5
18	15 18.4	15 13.6	56 4.8	1.52	55 47.2	1.41	21 4.3	1.91	24.5
19	15 9.2	15 5.2	55 31.0	− 1.30	55 16.2	− 1.19	21 49.1	1.84	25.5
20	15 1.5	14 58.2	55 2.7	1.08	54 50.4	0.97	22 32.5	1.79	26.5
21	14 55.2	14 52.5	54 39.5	0.86	54 29.7	0.76	23 15.2	1.78	27.5
22	14 50.2	14 48.2	54 21.2	− 0.66	54 14.0	− 0.56	23 57.9	1.78	28.5
23	14 46.6	14 45.3	54 7.9	0.46	54 3.0	0.35	6	. .	29.5
24	14 44.3	14 43.7	53 59.5	0.24	53 57.3	− 0.13	0 41.0	1.81	0.8
25	14 43.5	14 43.6	53 56.4	− 0.01	53 57.1	+ 0.12	1 25.0	1.86	1.8
26	14 44.2	14 45.3	53 59.4	+ 0.26	54 3.3	0.40	2 10.4	1.92	2.8
27	14 46.9	14 49.0	54 9.1	0.55	54 16.7	0.71	2 57.1	1.97	3.8
28	14 51.6	14 54.8	54 26.3	+ 0.88	54 38.0	+ 1.06	3 45.1	2.02	4.8
29	14 58.6	15 2.9	54 51.8	1.24	55 7.8	1.42	4 34.1	2.06	5.8
30	15 7.8	15 13.3	55 25.9	1.60	55 46.2	1.77	5 23.9	2.08	6.8
31	15 19.4	15 26.0	56 8.5	+ 1.93	56 32.7	+ 2.08	6 14.1	2.10	7.8

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 1.					TUESDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	6 14 13.97	2.1453	N.19 42 32.5	1.129	0	7 59 21.97	2.2271	N.18 42 45.4	3.692
1	6 16 22.75	2.1475	19 43 37.4	1.034	1	8 1 35.63	2.2283	18 39 0.8	3.794
2	6 18 31.67	2.1497	19 44 36.6	0.939	2	8 3 49.36	2.2294	18 35 10.1	3.898
3	6 20 40.71	2.1518	19 45 30.1	0.843	3	8 6 3.16	2.2306	18 31 13.1	4.002
4	6 22 49.88	2.1539	19 46 17.8	0.748	4	8 8 17.03	2.2317	18 27 9.9	4.105
5	6 24 59.18	2.1560	19 46 59.8	0.652	5	8 10 30.96	2.2328	18 23 0.5	4.208
6	6 27 8.60	2.1581	19 47 36.0	0.555	6	8 12 44.96	2.2338	18 18 44.9	4.311
7	6 29 18.15	2.1602	19 48 6.4	0.458	7	8 14 59.02	2.2348	18 14 23.2	4.413
8	6 31 27.82	2.1622	19 48 31.0	0.361	8	8 17 13.14	2.2358	18 9 55.3	4.517
9	6 33 37.61	2.1642	19 48 49.7	0.263	9	8 19 27.32	2.2368	18 5 21.2	4.620
10	6 35 47.52	2.1663	19 49 2.6	0.166	10	8 21 41.56	2.2378	18 0 40.9	4.723
11	6 37 57.56	2.1683	19 49 9.6	0.068	11	8 23 55.86	2.2388	17 55 54.4	4.826
12	6 40 7.71	2.1702	19 49 10.8	0.029	12	8 26 10.22	2.2398	17 51 1.8	4.928
13	6 42 17.98	2.1722	19 49 6.1	0.128	13	8 28 24.63	2.2407	17 46 3.0	5.031
14	6 44 28.37	2.1741	19 48 55.4	0.228	14	8 30 39.10	2.2416	17 40 58.1	5.133
15	6 46 38.87	2.1760	19 48 38.8	0.326	15	8 32 53.62	2.2424	17 35 47.1	5.235
16	6 48 49.49	2.1780	19 48 16.3	0.425	16	8 35 8.19	2.2433	17 30 29.9	5.338
17	6 51 0.23	2.1798	19 47 47.8	0.525	17	8 37 22.82	2.2443	17 25 6.6	5.439
18	6 53 11.07	2.1816	19 47 13.3	0.625	18	8 39 37.50	2.2451	17 19 37.2	5.541
19	6 55 22.02	2.1835	19 46 32.8	0.724	19	8 41 52.23	2.2458	17 14 1.7	5.643
20	6 57 33.09	2.1853	19 45 46.4	0.824	20	8 44 7.00	2.2466	17 8 20.1	5.743
21	6 59 44.26	2.1871	19 44 53.9	0.925	21	8 46 21.82	2.2474	17 2 32.5	5.844
22	7 1 55.54	2.1888	19 43 55.4	1.026	22	8 48 36.69	2.2482	16 56 38.8	5.945
23	7 4 6.92	2.1906	N.19 42 50.8	1.127	23	8 50 51.60	2.2489	N.16 50 39.1	6.046
	MONDAY 2.					WEDNESDAY 4.			
0	7 6 18.41	2.1923	N.19 41 40.2	1.228	0	8 53 6.56	2.2497	N.16 44 33.3	6.145
1	7 8 30.00	2.1940	19 40 23.5	1.329	1	8 55 21.56	2.2503	16 38 21.5	6.246
2	7 10 41.69	2.1958	19 39 0.7	1.430	2	8 57 36.60	2.2511	16 32 3.8	6.345
3	7 12 53.49	2.1974	19 37 31.9	1.531	3	8 59 51.69	2.2518	16 25 40.1	6.445
4	7 15 5.38	2.1990	19 35 57.0	1.633	4	9 2 6.82	2.2525	16 19 10.4	6.545
5	7 17 17.37	2.2007	19 34 15.9	1.736	5	9 4 21.99	2.2532	16 12 34.7	6.644
6	7 19 29.46	2.2023	19 32 28.7	1.838	6	9 6 37.20	2.2538	16 5 53.1	6.742
7	7 21 41.64	2.2038	19 30 35.4	1.939	7	9 8 52.45	2.2544	15 59 5.7	6.839
8	7 23 53.92	2.2053	19 28 36.0	2.042	8	9 11 7.73	2.2550	15 52 12.4	6.938
9	7 26 6.28	2.2068	19 26 30.4	2.144	9	9 13 23.05	2.2557	15 45 13.2	7.035
10	7 28 18.74	2.2084	19 24 18.7	2.247	10	9 15 38.41	2.2563	15 38 8.2	7.133
11	7 30 31.29	2.2099	19 22 0.8	2.350	11	9 17 53.81	2.2569	15 30 57.3	7.229
12	7 32 43.93	2.2113	19 19 36.7	2.453	12	9 20 9.24	2.2575	15 23 40.7	7.325
13	7 34 56.65	2.2128	19 17 6.5	2.555	13	9 22 24.71	2.2581	15 16 18.3	7.421
14	7 37 9.46	2.2143	19 14 30.1	2.658	14	9 24 40.21	2.2586	15 8 50.2	7.517
15	7 39 22.36	2.2156	19 11 47.5	2.762	15	9 26 55.74	2.2592	15 1 16.3	7.612
16	7 41 35.33	2.2169	19 8 58.7	2.865	16	9 29 11.31	2.2598	14 53 36.8	7.706
17	7 43 48.39	2.2183	19 6 3.7	2.968	17	9 31 26.91	2.2603	14 45 51.6	7.801
18	7 46 1.53	2.2197	19 3 2.6	3.071	18	9 33 42.55	2.2609	14 38 0.7	7.894
19	7 48 14.75	2.2209	18 59 55.2	3.175	19	9 35 58.22	2.2614	14 30 4.3	7.987
20	7 50 28.04	2.2222	18 56 41.6	3.278	20	9 38 13.92	2.2619	14 22 2.3	8.080
21	7 52 41.41	2.2235	18 53 21.9	3.380	21	9 40 29.65	2.2625	14 13 54.7	8.172
22	7 54 54.86	2.2247	18 49 56.0	3.484	22	9 42 45.42	2.2631	14 5 41.6	8.263
23	7 57 8.38	2.2259	18 46 23.8	3.588	23	9 45 1.22	2.2636	13 57 23.1	8.354
24	7 59 21.97	2.2271	N.18 42 45.4	3.692	24	9 47 17.05	2.2641	N.13 48 59.1	8.445

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 5.					SATURDAY 7.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	9 47 17.05	2.2641	N. 13 48 59.1	8.445	0	11 36 38.89	2.2971	N. 5 33 13.0	11.867
1	9 49 32.91	2.2646	13 40 29.7	8.535	1	11 38 56.75	2.2982	5 21 19.6	11.913
2	9 51 48.80	2.2651	13 31 54.9	8.625	2	11 41 14.67	2.2992	5 9 23.5	11.958
3	9 54 4.72	2.2657	13 23 14.7	8.713	3	11 43 32.65	2.3003	4 57 24.7	12.002
4	9 56 20.68	2.2663	13 14 29.3	8.801	4	11 45 50.70	2.3015	4 45 23.3	12.044
5	9 58 36.67	2.2667	13 5 38.6	8.889	5	11 48 8.83	2.3027	4 33 19.4	12.086
6	10 0 52.68	2.2672	12 56 42.6	8.976	6	11 50 27.02	2.3038	4 21 13.0	12.127
7	10 3 8.73	2.2678	12 47 41.5	9.062	7	11 52 45.28	2.3050	4 9 4.2	12.165
8	10 5 24.81	2.2683	12 38 35.2	9.148	8	11 55 3.62	2.3063	3 56 53.2	12.202
9	10 7 40.92	2.2688	12 29 23.8	9.233	9	11 57 22.03	2.3075	3 44 40.0	12.238
10	10 9 57.06	2.2693	12 20 7.3	9.317	10	11 59 40.52	2.3088	3 32 24.6	12.273
11	10 12 13.23	2.2698	12 10 45.8	9.400	11	12 1 59.08	2.3100	3 20 7.2	12.307
12	10 14 29.44	2.2704	12 1 19.3	9.483	12	12 4 17.72	2.3113	3 7 47.8	12.339
13	10 16 45.68	2.2709	11 51 47.9	9.565	13	12 6 36.44	2.3128	2 55 26.5	12.370
14	10 19 1.95	2.2714	11 42 11.5	9.647	14	12 8 55.25	2.3142	2 43 3.4	12.399
15	10 21 18.25	2.2720	11 32 30.3	9.727	15	12 11 14.14	2.3155	2 30 38.6	12.427
16	10 23 34.59	2.2726	11 22 44.3	9.806	16	12 13 33.11	2.3169	2 18 12.2	12.453
17	10 25 50.96	2.2731	11 12 53.6	9.885	17	12 15 52.17	2.3184	2 5 44.2	12.479
18	10 28 7.36	2.2737	11 2 58.1	9.963	18	12 18 11.32	2.3198	1 53 14.7	12.503
19	10 30 23.80	2.2743	10 52 58.0	10.041	19	12 20 30.55	2.3213	1 40 43.9	12.524
20	10 32 40.27	2.2748	10 42 53.2	10.118	20	12 22 49.88	2.3229	1 28 11.8	12.545
21	10 34 56.78	2.2755	10 32 43.9	10.193	21	12 25 9.30	2.3244	1 15 38.5	12.565
22	10 37 13.33	2.2761	10 22 30.1	10.268	22	12 27 28.81	2.3260	1 3 4.0	12.583
23	10 39 29.91	2.2767	N. 10 12 11.8	10.342	23	12 29 48.42	2.3277	N. 0 50 28.5	12.599
	FRIDAY 6.					SUNDAY 8.			
0	10 41 46.53	2.2773	N. 10 1 49.1	10.415	0	12 32 8.13	2.3293	N. 0 37 52.1	12.614
1	10 44 3.19	2.2780	9 51 22.0	10.487	1	12 34 27.93	2.3309	0 25 14.8	12.628
2	10 46 19.89	2.2786	9 40 50.7	10.558	2	12 36 47.84	2.3327	N. 0 12 36.8	12.639
3	10 48 36.62	2.2793	9 30 15.1	10.628	3	12 39 7.85	2.3343	S. 0 0 1.9	12.650
4	10 50 53.40	2.2800	9 19 35.3	10.698	4	12 41 27.96	2.3360	0 12 41.2	12.659
5	10 53 10.22	2.2807	9 8 51.4	10.766	5	12 43 48.17	2.3378	0 25 21.0	12.667
6	10 55 27.08	2.2813	8 58 3.4	10.833	6	12 46 8.49	2.3396	0 38 1.2	12.673
7	10 57 43.98	2.2821	8 47 11.4	10.900	7	12 48 28.92	2.3414	0 50 41.7	12.677
8	11 0 0.93	2.2828	8 36 15.4	10.966	8	12 50 49.46	2.3433	1 3 22.4	12.679
9	11 2 17.92	2.2836	8 25 15.5	11.030	9	12 53 10.11	2.3451	1 16 3.2	12.681
10	11 4 34.96	2.2844	8 14 11.8	11.093	10	12 55 30.87	2.3469	1 28 44.1	12.681
11	11 6 52.05	2.2852	8 3 4.3	11.156	11	12 57 51.74	2.3488	1 41 24.9	12.679
12	11 9 9.18	2.2859	7 51 53.1	11.217	12	13 0 12.73	2.3508	1 54 5.6	12.676
13	11 11 26.36	2.2868	7 40 38.3	11.278	13	13 2 33.84	2.3528	2 6 46.0	12.671
14	11 13 43.59	2.2876	7 29 19.8	11.338	14	13 4 55.06	2.3547	2 19 26.1	12.665
15	11 16 0.87	2.2884	7 17 57.8	11.395	15	13 7 16.40	2.3568	2 32 5.8	12.657
16	11 18 18.20	2.2893	7 6 32.4	11.452	16	13 9 37.87	2.3588	2 44 44.9	12.647
17	11 20 35.59	2.2903	6 55 3.6	11.508	17	13 11 59.46	2.3608	2 57 23.4	12.635
18	11 22 53.03	2.2912	6 43 31.5	11.563	18	13 14 21.17	2.3628	3 10 1.1	12.622
19	11 25 10.53	2.2922	6 31 56.1	11.616	19	13 16 43.00	2.3649	3 22 38.0	12.608
20	11 27 28.09	2.2931	6 20 17.6	11.668	20	13 19 4.96	2.3671	3 35 14.0	12.592
21	11 29 45.70	2.2940	6 8 35.9	11.720	21	13 21 27.05	2.3693	3 47 49.0	12.574
22	11 32 3.37	2.2950	5 56 51.2	11.769	22	13 23 49.27	2.3713	4 0 22.9	12.555
23	11 34 21.10	2.2960	5 45 3.6	11.818	23	13 26 11.61	2.3735	4 12 55.6	12.533
24	11 36 38.89	2.2971	N. 5 33 13.0	11.867	24	13 28 34.09	2.3758	S. 4 25 26.9	12.510

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 9.					WEDNESDAY 11.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	13 28 34.09	2.3758	S. 4 25 26.9	12.510	0	15 25 18.28	2.4875	S. 13 29 25.2	9.566
1	13 30 56.70	2.3779	4 37 56.8	12.486	1	15 27 47.59	2.4895	13 38 56.3	9.469
2	13 33 19.44	2.3801	4 50 25.2	12.461	2	15 30 17.02	2.4915	13 48 21.5	9.370
3	13 35 42.31	2.3823	5 2 52.1	12.433	3	15 32 46.57	2.4935	13 57 40.7	9.271
4	13 38 5.32	2.3847	5 15 17.2	12.403	4	15 35 16.24	2.4955	14 6 54.0	9.171
5	13 40 28.47	2.3869	5 27 40.5	12.373	5	15 37 46.03	2.4974	14 16 1.2	9.068
6	13 42 51.75	2.3892	5 40 1.9	12.340	6	15 40 15.93	2.4993	14 25 2.2	8.965
7	13 45 15.17	2.3915	5 52 21.3	12.306	7	15 42 45.94	2.5011	14 33 57.0	8.861
8	13 47 38.73	2.3938	6 4 38.6	12.270	8	15 45 16.06	2.5028	14 42 45.5	8.756
9	13 50 2.43	2.3962	6 16 53.7	12.233	9	15 47 46.28	2.5046	14 51 27.7	8.650
10	13 52 26.27	2.3985	6 29 6.6	12.195	10	15 50 16.61	2.5063	15 0 3.5	8.543
11	13 54 50.25	2.4008	6 41 17.1	12.154	11	15 52 47.04	2.5080	15 8 32.8	8.433
12	13 57 14.37	2.4032	6 53 25.1	12.112	12	15 55 17.57	2.5096	15 16 55.5	8.323
13	13 59 38.63	2.4056	7 5 30.5	12.068	13	15 57 48.19	2.5112	15 25 11.6	8.213
14	14 2 3.04	2.4080	7 17 33.2	12.023	14	16 0 18.91	2.5128	15 33 21.1	8.102
15	14 4 27.59	2.4104	7 29 33.2	11.976	15	16 2 49.72	2.5143	15 41 23.8	7.988
16	14 6 52.29	2.4128	7 41 30.3	11.928	16	16 5 20.62	2.5157	15 49 19.7	7.874
17	14 9 17.13	2.4153	7 53 24.5	11.878	17	16 7 51.60	2.5170	15 57 8.7	7.760
18	14 11 42.12	2.4177	8 5 15.6	11.825	18	16 10 22.66	2.5183	16 4 50.9	7.645
19	14 14 7.25	2.4200	8 17 3.5	11.771	19	16 12 53.80	2.5196	16 12 26.1	7.528
20	14 16 32.52	2.4224	8 28 48.1	11.716	20	16 15 25.01	2.5208	16 19 54.3	7.411
21	14 18 57.94	2.4249	8 40 29.4	11.660	21	16 17 56.29	2.5219	16 27 15.4	7.293
22	14 21 23.51	2.4273	8 52 7.3	11.603	22	16 20 27.64	2.5231	16 34 29.4	7.174
23	14 23 49.22	2.4298	S. 9 3 41.7	11.543	23	16 22 59.06	2.5242	S. 16 41 36.3	7.054
	TUESDAY 10.					THURSDAY 12.			
0	14 26 15.08	2.4322	S. 9 15 12.4	11.481	0	16 25 30.54	2.5252	S. 16 48 35.9	6.933
1	14 28 41.08	2.4346	9 26 39.4	11.418	1	16 28 2.08	2.5261	16 55 28.3	6.812
2	14 31 7.23	2.4371	9 38 2.5	11.353	2	16 30 33.67	2.5269	17 2 13.3	6.689
3	14 33 33.53	2.4395	9 49 21.8	11.288	3	16 33 5.31	2.5277	17 8 51.0	6.567
4	14 35 59.97	2.4418	10 0 37.1	11.220	4	16 35 36.99	2.5284	17 15 21.3	6.443
5	14 38 26.55	2.4443	10 11 48.2	11.151	5	16 38 8.72	2.5292	17 21 44.1	6.318
6	14 40 53.28	2.4467	10 22 55.2	11.081	6	16 40 40.49	2.5298	17 27 59.5	6.194
7	14 43 20.15	2.4491	10 33 57.9	11.009	7	16 43 12.29	2.5303	17 34 7.4	6.068
8	14 45 47.17	2.4515	10 44 56.3	10.936	8	16 45 44.12	2.5308	17 40 7.7	5.943
9	14 48 14.33	2.4538	10 55 50.2	10.860	9	16 48 15.98	2.5312	17 46 0.5	5.816
10	14 50 41.63	2.4563	11 6 39.5	10.783	10	16 50 47.86	2.5315	17 51 45.6	5.688
11	14 53 9.08	2.4586	11 17 24.2	10.706	11	16 53 19.76	2.5318	17 57 23.0	5.560
12	14 55 36.66	2.4608	11 28 4.2	10.627	12	16 55 51.68	2.5321	18 2 52.8	5.432
13	14 58 4.38	2.4632	11 38 39.4	10.546	13	16 58 23.61	2.5322	18 8 14.9	5.303
14	15 0 32.25	2.4656	11 49 9.7	10.463	14	17 0 55.54	2.5322	18 13 29.2	5.173
15	15 3 0.25	2.4678	11 59 35.0	10.379	15	17 3 27.47	2.5322	18 18 35.7	5.043
16	15 5 28.39	2.4702	12 9 55.2	10.294	16	17 5 59.40	2.5321	18 23 34.4	4.913
17	15 7 56.67	2.4724	12 20 10.3	10.208	17	17 8 31.32	2.5319	18 28 25.3	4.783
18	15 10 25.08	2.4746	12 30 20.2	10.121	18	17 11 3.23	2.5317	18 33 8.4	4.653
19	15 12 53.62	2.4768	12 40 24.8	10.032	19	17 13 35.12	2.5313	18 37 43.6	4.522
20	15 15 22.29	2.4789	12 50 24.0	9.941	20	17 16 6.99	2.5310	18 42 11.0	4.391
21	15 17 51.09	2.4812	13 0 17.7	9.849	21	17 18 38.84	2.5306	18 46 30.5	4.258
22	15 20 20.03	2.4833	13 10 5.9	9.756	22	17 21 10.66	2.5300	18 50 42.0	4.126
23	15 22 49.09	2.4854	13 19 48.4	9.661	23	17 23 42.44	2.5294	18 54 45.6	3.993
24	15 25 18.28	2.4875	S. 13 29 25.2	9.566	24	17 26 14.19	2.5288	S. 18 58 41.2	3.861

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 13.					SUNDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	17 26 14.19	2.5288	S. 18 58 41.2	3.861	0	19 25 24.63	2.4105	S. 19 32 53.3	2.308
1	17 28 45.89	2.5280	19 2 28.9	3.728	1	19 27 49.14	2.4066	19 30 31.3	2.426
2	17 31 17.55	2.5272	19 6 8.6	3.596	2	19 30 13.42	2.4026	19 28 2.2	2.543
3	17 33 49.15	2.5263	19 9 40.4	3.463	3	19 32 37.45	2.3984	19 25 26.2	2.658
4	17 36 20.70	2.5253	19 13 4.2	3.330	4	19 35 1.23	2.3943	19 22 43.3	2.772
5	17 38 52.18	2.5242	19 16 20.0	3.197	5	19 37 24.77	2.3903	19 19 53.6	2.886
6	17 41 23.60	2.5231	19 19 27.8	3.063	6	19 39 48.06	2.3861	19 16 57.0	2.999
7	17 43 54.95	2.5218	19 22 27.6	2.930	7	19 42 11.10	2.3819	19 13 53.7	3.111
8	17 46 26.22	2.5205	19 25 19.4	2.797	8	19 44 33.89	2.3777	19 10 43.7	3.223
9	17 48 57.41	2.5192	19 28 3.2	2.664	9	19 46 56.42	2.3733	19 7 27.0	3.333
10	17 51 28.52	2.5178	19 30 39.1	2.531	10	19 49 18.69	2.3690	19 4 3.7	3.443
11	17 53 59.54	2.5162	19 33 6.9	2.397	11	19 51 40.70	2.3647	19 0 33.8	3.553
12	17 56 30.46	2.5146	19 35 26.7	2.263	12	19 54 2.45	2.3603	18 56 57.4	3.661
13	17 59 1.29	2.5129	19 37 38.5	2.131	13	19 56 23.94	2.3559	18 53 14.5	3.768
14	18 1 32.01	2.5111	19 39 42.4	1.998	14	19 58 45.16	2.3514	18 49 25.2	3.875
15	18 4 2.62	2.5093	19 41 38.3	1.865	15	20 1 6.11	2.3469	18 45 29.5	3.981
16	18 6 33.12	2.5073	19 43 26.2	1.733	16	20 3 26.79	2.3425	18 41 27.5	4.086
17	18 9 3.50	2.5053	19 45 6.2	1.600	17	20 5 47.21	2.3381	18 37 19.2	4.190
18	18 11 33.76	2.5033	19 46 38.2	1.468	18	20 8 7.36	2.3335	18 33 4.7	4.293
19	18 14 3.90	2.5012	19 48 2.3	1.336	19	20 10 27.23	2.3289	18 28 44.1	4.395
20	18 16 33.91	2.4990	19 49 18.5	1.204	20	20 12 46.83	2.3243	18 24 17.3	4.497
21	18 19 3.78	2.4967	19 50 26.8	1.073	21	20 15 6.15	2.3198	18 19 44.5	4.597
22	18 21 33.51	2.4943	19 51 27.2	0.941	22	20 17 25.20	2.3152	18 15 5.7	4.697
23	18 24 3.10	2.4919	S. 19 52 19.7	0.810	23	20 19 43.97	2.3105	S. 18 10 20.9	4.796
	SATURDAY 14.					MONDAY 16.			
0	18 26 32.54	2.4894	S. 19 53 4.4	0.680	0	20 22 2.46	2.3058	S. 18 5 30.2	4.893
1	18 29 1.83	2.4869	19 53 41.3	0.550	1	20 24 20.67	2.3012	18 0 33.7	4.990
2	18 31 30.97	2.4843	19 54 10.4	0.420	2	20 26 38.60	2.2966	17 55 31.4	5.087
3	18 33 59.94	2.4815	19 54 31.7	0.290	3	20 28 56.26	2.2919	17 50 23.3	5.182
4	18 36 28.75	2.4788	19 54 45.2	0.161	4	20 31 13.63	2.2872	17 45 9.6	5.276
5	18 38 57.39	2.4759	19 54 51.0	0.033	5	20 33 30.72	2.2825	17 39 50.2	5.370
6	18 41 25.86	2.4730	19 54 49.1	0.095	6	20 35 47.53	2.2778	17 34 25.2	5.462
7	18 43 54.15	2.4700	19 54 39.6	0.223	7	20 38 4.06	2.2731	17 28 54.7	5.553
8	18 46 22.26	2.4670	19 54 22.4	0.351	8	20 40 20.30	2.2683	17 23 18.8	5.643
9	18 48 50.19	2.4640	19 53 57.5	0.478	9	20 42 36.26	2.2637	17 17 37.5	5.733
10	18 51 17.94	2.4608	19 53 25.1	0.603	10	20 44 51.94	2.2589	17 11 50.8	5.823
11	18 53 45.49	2.4575	19 52 45.1	0.729	11	20 47 7.33	2.2542	17 5 58.8	5.911
12	18 56 12.84	2.4543	19 51 57.6	0.854	12	20 49 22.44	2.2495	17 0 1.5	5.998
13	18 58 40.00	2.4509	19 51 2.6	0.978	13	20 51 37.27	2.2448	16 53 59.0	6.084
14	19 1 6.95	2.4475	19 50 0.2	1.103	14	20 53 51.82	2.2401	16 47 51.4	6.169
15	19 3 33.70	2.4441	19 48 50.3	1.227	15	20 56 6.08	2.2353	16 41 38.7	6.253
16	19 6 0.24	2.4405	19 47 33.0	1.350	16	20 58 20.06	2.2307	16 35 21.0	6.336
17	19 8 26.56	2.4369	19 46 8.3	1.472	17	21 0 33.76	2.2259	16 28 58.4	6.418
18	19 10 52.67	2.4333	19 44 36.4	1.593	18	21 2 47.17	2.2212	16 22 30.8	6.501
19	19 13 18.56	2.4297	19 42 57.2	1.714	19	21 5 0.30	2.2166	16 15 58.3	6.582
20	19 15 44.23	2.4260	19 41 10.7	1.834	20	21 7 13.16	2.2120	16 9 21.0	6.661
21	19 18 9.68	2.4222	19 39 17.1	1.953	21	21 9 25.74	2.2073	16 2 39.0	6.739
22	19 20 34.90	2.4183	19 37 16.3	2.073	22	21 11 38.03	2.2025	15 55 52.3	6.817
23	19 22 59.88	2.4144	19 35 8.3	2.192	23	21 13 50.04	2.1979	15 49 1.0	6.893
24	19 25 24.63	2.4105	S. 19 32 53.3	2.308	24	21 16 1.78	2.1933	S. 15 42 5.1	6.969

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.			Diff. for 1 Minute.
TUESDAY 17.								
	h	m	s	s	°	′	″	″
0	21	16	1.78	2.1933	S. 15	42	5.1	6.969
1	21	18	13.24	2.1887	15	35	4.7	7.044
2	21	20	24.42	2.1841	15	27	59.8	7.118
3	21	22	35.33	2.1796	15	20	50.5	7.192
4	21	24	45.97	2.1750	15	13	36.8	7.264
5	21	26	56.33	2.1703	15	6	18.8	7.335
6	21	29	6.41	2.1658	14	58	56.6	7.405
7	21	31	16.23	2.1614	14	51	30.2	7.475
8	21	33	25.78	2.1569	14	43	59.6	7.544
9	21	35	35.06	2.1524	14	36	24.9	7.612
10	21	37	44.07	2.1479	14	28	46.2	7.678
11	21	39	52.81	2.1435	14	21	3.6	7.743
12	21	42	1.29	2.1392	14	13	17.0	7.808
13	21	44	9.51	2.1348	14	5	26.6	7.873
14	21	46	17.46	2.1303	13	57	32.3	7.936
15	21	48	25.15	2.1261	13	49	34.3	7.998
16	21	50	32.59	2.1218	13	41	32.6	8.059
17	21	52	39.77	2.1175	13	33	27.2	8.120
18	21	54	46.69	2.1132	13	25	18.2	8.180
19	21	56	53.35	2.1090	13	17	5.6	8.238
20	21	58	59.77	2.1049	13	8	49.6	8.296
21	22	1	5.94	2.1007	13	0	30.1	8.352
22	22	3	11.85	2.0965	12	52	7.3	8.408
23	22	5	17.52	2.0925	S. 12	43	41.1	8.464
WEDNESDAY 18.								
0	22	7	22.95	2.0884	S. 12	35	11.6	8.519
1	22	9	28.13	2.0843	12	26	38.9	8.572
2	22	11	33.07	2.0803	12	18	3.0	8.624
3	22	13	37.77	2.0764	12	9	24.0	8.676
4	22	15	42.24	2.0725	12	0	41.9	8.727
5	22	17	46.47	2.0686	11	51	56.8	8.777
6	22	19	50.47	2.0648	11	43	8.7	8.826
7	22	21	54.24	2.0609	11	34	17.7	8.874
8	22	23	57.78	2.0571	11	25	23.8	8.922
9	22	26	1.09	2.0533	11	16	27.1	8.968
10	22	28	4.18	2.0496	11	7	27.6	9.014
11	22	30	7.04	2.0459	10	58	25.4	9.059
12	22	32	9.69	2.0423	10	49	20.5	9.103
13	22	34	12.12	2.0388	10	40	13.0	9.147
14	22	36	14.34	2.0352	10	31	2.9	9.189
15	22	38	16.34	2.0316	10	21	50.3	9.230
16	22	40	18.13	2.0281	10	12	35.3	9.271
17	22	42	19.71	2.0247	10	3	17.8	9.311
18	22	44	21.09	2.0213	9	53	58.0	9.350
19	22	46	22.26	2.0178	9	44	35.8	9.389
20	22	48	23.23	2.0146	9	35	11.3	9.427
21	22	50	24.01	2.0113	9	25	44.6	9.463
22	22	52	24.59	2.0080	9	16	15.8	9.498
23	22	54	24.97	2.0048	9	6	44.8	9.534
24	22	56	25.16	2.0016	S. 8	57	11.7	9.568

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.			Diff. for 1 Minute.
THURSDAY 19.								
	h	m	s	s	°	′	″	″
0	22	56	25.16	2.0016	S. 8	57	11.7	9.568
1	22	58	25.16	1.9985	8	47	36.6	9.602
2	23	0	24.98	1.9955	8	37	59.5	9.635
3	23	2	24.62	1.9924	8	28	20.4	9.667
4	23	4	24.07	1.9893	8	18	39.5	9.698
5	23	6	23.34	1.9864	8	8	56.7	9.728
6	23	8	22.44	1.9835	7	59	12.1	9.758
7	23	10	21.36	1.9806	7	49	25.7	9.788
8	23	12	20.11	1.9778	7	39	37.6	9.815
9	23	14	18.70	1.9751	7	29	47.9	9.843
10	23	16	17.12	1.9723	7	19	56.5	9.869
11	23	18	15.37	1.9695	7	10	3.6	9.895
12	23	20	13.46	1.9668	7	0	9.1	9.920
13	23	22	11.39	1.9643	6	50	13.2	9.944
14	23	24	9.17	1.9618	6	40	15.8	9.968
15	23	26	6.80	1.9592	6	30	17.0	9.991
16	23	28	4.27	1.9567	6	20	16.9	10.013
17	23	30	1.60	1.9543	6	10	15.5	10.034
18	23	31	58.78	1.9518	6	0	12.8	10.055
19	23	33	55.82	1.9494	5	50	8.9	10.075
20	23	35	52.71	1.9471	5	40	3.8	10.094
21	23	37	49.47	1.9449	5	29	57.6	10.113
22	23	39	46.10	1.9428	5	19	50.3	10.130
23	23	41	42.60	1.9405	S. 5	9	42.0	10.147
FRIDAY 20.								
0	23	43	38.96	1.9383	S. 4	59	32.7	10.163
1	23	45	35.20	1.9363	4	49	22.4	10.179
2	23	47	31.31	1.9342	4	39	11.2	10.193
3	23	49	27.30	1.9323	4	28	59.2	10.207
4	23	51	23.18	1.9303	4	18	46.4	10.220
5	23	53	18.94	1.9283	4	8	32.8	10.233
6	23	55	14.58	1.9264	3	58	18.4	10.246
7	23	57	10.11	1.9247	3	48	3.3	10.257
8	23	59	5.54	1.9229	3	37	47.6	10.268
9	0	1	0.86	1.9212	3	27	31.2	10.278
10	0	2	56.08	1.9194	3	17	14.3	10.286
11	0	4	51.19	1.9178	3	6	56.9	10.294
12	0	6	46.21	1.9163	2	56	39.0	10.303
13	0	8	41.14	1.9147	2	46	20.6	10.309
14	0	10	35.97	1.9131	2	36	1.9	10.315
15	0	12	30.71	1.9116	2	25	42.8	10.322
16	0	14	25.36	1.9102	2	15	23.3	10.327
17	0	16	19.93	1.9088	2	5	3.6	10.330
18	0	18	14.42	1.9075	1	54	43.7	10.334
19	0	20	8.83	1.9062	1	44	23.5	10.337
20	0	22	3.16	1.9049	1	34	3.2	10.339
21	0	23	57.42	1.9038	1	23	42.8	10.341
22	0	25	51.61	1.9026	1	13	22.3	10.343
23	0	27	45.73	1.9014	1	3	1.7	10.343
24	0	29	39.78	1.9003	S. 0	52	41.2	10.342

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.				Diff. for 1 Minute.
SATURDAY 21.									
	h	m	s	s		°	′	″	″
0	0	29	39.78	1.9003	S.	0	52	41.2	10.342
1	0	31	33.77	1.8993		0	42	20.7	10.341
2	0	33	27.70	1.8983		0	32	0.3	10.339
3	0	35	21.56	1.8973		0	21	40.0	10.337
4	0	37	15.37	1.8964		0	11	19.9	10.333
5	0	39	9.13	1.8956	S.	0	1	0.0	10.329
6	0	41	2.84	1.8948	N.	0	9	19.6	10.325
7	0	42	56.50	1.8939		0	19	39.0	10.321
8	0	44	50.11	1.8932		0	29	58.1	10.315
9	0	46	43.68	1.8925		0	40	16.8	10.308
10	0	48	37.21	1.8918		0	50	35.0	10.300
11	0	50	30.70	1.8913		1	0	52.8	10.293
12	0	52	24.16	1.8907		1	11	10.2	10.285
13	0	54	17.58	1.8901		1	21	27.0	10.276
14	0	56	10.97	1.8896		1	31	43.3	10.267
15	0	58	4.33	1.8892		1	41	59.0	10.256
16	0	59	57.67	1.8888		1	52	14.0	10.244
17	1	1	50.98	1.8883		2	2	28.3	10.233
18	1	3	44.27	1.8881		2	12	41.9	10.221
19	1	5	37.55	1.8878		2	22	54.8	10.208
20	1	7	30.81	1.8875		2	33	6.9	10.194
21	1	9	24.05	1.8873		2	43	18.1	10.179
22	1	11	17.28	1.8871		2	53	28.4	10.165
23	1	13	10.50	1.8870	N.	3	3	37.9	10.150
SUNDAY 22.									
0	1	15	3.72	1.8869	N.	3	13	46.4	10.133
1	1	16	56.93	1.8868		3	23	53.9	10.117
2	1	18	50.14	1.8868		3	34	0.4	10.100
3	1	20	43.35	1.8868		3	44	5.9	10.082
4	1	22	36.56	1.8869		3	54	10.2	10.063
5	1	24	29.78	1.8870		4	4	13.4	10.044
6	1	26	23.00	1.8871		4	14	15.5	10.024
7	1	28	16.23	1.8873		4	24	16.3	10.003
8	1	30	9.48	1.8876		4	34	15.9	9.982
9	1	32	2.74	1.8878		4	44	14.2	9.960
10	1	33	56.01	1.8880		4	54	11.1	9.938
11	1	35	49.30	1.8884		5	4	6.7	9.915
12	1	37	42.62	1.8888		5	14	0.9	9.892
13	1	39	35.96	1.8892		5	23	53.7	9.868
14	1	41	29.32	1.8896		5	33	45.0	9.842
15	1	43	22.71	1.8901		5	43	34.7	9.816
16	1	45	16.13	1.8906		5	53	22.9	9.790
17	1	47	9.58	1.8911		6	3	9.5	9.763
18	1	49	3.06	1.8917		6	12	54.5	9.737
19	1	50	56.58	1.8923		6	22	37.9	9.709
20	1	52	50.13	1.8929		6	32	19.6	9.680
21	1	54	43.73	1.8937		6	41	59.5	9.650
22	1	56	37.37	1.8943		6	51	37.6	9.620
23	1	58	31.05	1.8951		7	1	13.9	9.590
24	2	0	24.78	1.8959	N.	7	10	48.4	9.559

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.				Diff. for 1 Minute.
MONDAY 23.									
	h	m	s	s		°	′	″	″
0	2	0	24.78	1.8959	N.	7	10	48.4	9.559
1	2	2	18.56	1.8967		7	20	21.0	9.528
2	2	4	12.38	1.8975		7	29	51.7	9.495
3	2	6	6.26	1.8984		7	39	20.4	9.462
4	2	8	0.19	1.8993		7	48	47.1	9.428
5	2	9	54.18	1.9003		7	58	11.8	9.395
6	2	11	48.22	1.9012		8	7	34.5	9.360
7	2	13	42.32	1.9023		8	16	55.0	9.324
8	2	15	36.49	1.9033		8	26	13.4	9.288
9	2	17	30.72	1.9043		8	35	29.6	9.252
10	2	19	25.01	1.9054		8	44	43.6	9.214
11	2	21	19.37	1.9066		8	53	55.3	9.177
12	2	23	13.80	1.9078		9	3	4.8	9.138
13	2	25	8.30	1.9089		9	12	11.9	9.099
14	2	27	2.87	1.9101		9	21	16.7	9.060
15	2	28	57.51	1.9113		9	30	19.1	9.020
16	2	30	52.23	1.9127		9	39	19.1	8.979
17	2	32	47.03	1.9140		9	48	16.6	8.938
18	2	34	41.91	1.9153		9	57	11.6	8.896
19	2	36	36.86	1.9166		10	6	4.1	8.853
20	2	38	31.90	1.9180		10	14	54.0	8.810
21	2	40	27.02	1.9194		10	23	41.3	8.766
22	2	42	22.23	1.9209		10	32	25.9	8.722
23	2	44	17.53	1.9223	N.	10	41	7.9	8.677
TUESDAY 24.									
0	2	46	12.91	1.9238	N.	10	49	47.1	8.631
1	2	48	8.38	1.9253		10	58	23.6	8.585
2	2	50	3.95	1.9269		11	6	57.3	8.538
3	2	51	59.61	1.9284		11	15	28.2	8.492
4	2	53	55.36	1.9300		11	23	56.3	8.443
5	2	55	51.21	1.9316		11	32	21.4	8.394
6	2	57	47.15	1.9332		11	40	43.6	8.346
7	2	59	43.19	1.9349		11	49	2.9	8.297
8	3	1	39.34	1.9367		11	57	19.2	8.247
9	3	3	35.59	1.9383		12	5	32.5	8.196
10	3	5	31.93	1.9399		12	13	42.7	8.144
11	3	7	28.38	1.9417		12	21	49.8	8.092
12	3	9	24.94	1.9435		12	29	53.7	8.039
13	3	11	21.60	1.9453		12	37	54.5	7.987
14	3	13	18.37	1.9471		12	45	52.1	7.933
15	3	15	15.25	1.9489		12	53	46.4	7.878
16	3	17	12.24	1.9508		13	1	37.5	7.824
17	3	19	9.34	1.9526		13	9	25.3	7.768
18	3	21	6.55	1.9544		13	17	9.7	7.713
19	3	23	3.87	1.9563		13	24	50.8	7.657
20	3	25	1.31	1.9583		13	32	28.5	7.599
21	3	26	58.86	1.9602		13	40	2.7	7.542
22	3	28	56.53	1.9622		13	47	33.5	7.483
23	3	30	54.32	1.9641		13	55	0.7	7.424
24	3	32	52.22	1.9660	N.	14	2	24.4	7.365

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 25.					FRIDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	3 32 52.22	1.9660	N.14 2 24.4	7.365	0	5 9 41.03	2.0689	N.18 37 30.7	3.905
1	3 34 50.24	1.9680	14 9 44.5	7.305	1	5 11 45.23	2.0710	18 41 22.5	3.822
2	3 36 48.38	1.9701	14 17 1.0	7.245	2	5 13 49.55	2.0730	18 45 9.3	3.738
3	3 38 46.65	1.9722	14 24 13.9	7.184	3	5 15 53.99	2.0751	18 48 51.1	3.654
4	3 40 45.04	1.9741	14 31 23.1	7.123	4	5 17 58.56	2.0773	18 52 27.8	3.568
5	3 42 43.54	1.9761	14 38 28.6	7.060	5	5 20 3.26	2.0793	18 55 59.3	3.483
6	3 44 42.17	1.9783	14 45 30.3	6.998	6	5 22 8.08	2.0813	18 59 25.7	3.398
7	3 46 40.93	1.9803	14 52 28.3	6.935	7	5 24 13.02	2.0833	19 2 47.0	3.313
8	3 48 39.81	1.9823	14 59 22.5	6.871	8	5 26 18.08	2.0854	19 6 3.2	3.226
9	3 50 38.81	1.9844	15 6 12.8	6.806	9	5 28 23.27	2.0874	19 9 14.1	3.138
10	3 52 37.94	1.9865	15 12 59.2	6.742	10	5 30 28.57	2.0893	19 12 19.8	3.051
11	3 54 37.19	1.9886	15 19 41.8	6.677	11	5 32 33.99	2.0914	19 15 20.2	2.963
12	3 56 36.57	1.9908	15 26 20.4	6.610	12	5 34 39.54	2.0934	19 18 15.4	2.876
13	3 58 36.08	1.9929	15 32 55.0	6.544	13	5 36 45.20	2.0953	19 21 5.3	2.788
14	4 0 35.72	1.9950	15 39 25.7	6.478	14	5 38 50.98	2.0973	19 23 49.9	2.698
15	4 2 35.48	1.9971	15 45 52.3	6.410	15	5 40 56.88	2.0993	19 26 29.1	2.609
16	4 4 35.37	1.9993	15 52 14.9	6.342	16	5 43 2.89	2.1012	19 29 3.0	2.520
17	4 6 35.39	2.0014	15 58 33.3	6.273	17	5 45 9.02	2.1031	19 31 31.5	2.430
18	4 8 35.54	2.0036	16 4 47.6	6.204	18	5 47 15.26	2.1049	19 33 54.6	2.340
19	4 10 35.82	2.0058	16 10 57.8	6.135	19	5 49 21.61	2.1068	19 36 12.3	2.250
20	4 12 36.24	2.0080	16 17 3.8	6.065	20	5 51 28.07	2.1086	19 38 24.6	2.159
21	4 14 36.78	2.0101	16 23 5.6	5.994	21	5 53 34.64	2.1104	19 40 31.4	2.068
22	4 16 37.45	2.0123	16 29 3.1	5.923	22	5 55 41.32	2.1123	19 42 32.8	1.975
23	4 18 38.25	2.0145	N.16 34 56.4	5.852	23	5 57 48.11	2.1141	N.19 44 28.6	1.884
	THURSDAY 26.					SATURDAY 28.			
0	4 20 39.19	2.0168	N.16 40 45.3	5.779	0	5 59 55.01	2.1158	N.19 46 18.9	1.793
1	4 22 40.26	2.0189	16 46 29.9	5.707	1	6 2 2.01	2.1175	19 48 3.7	1.700
2	4 24 41.46	2.0211	16 52 10.1	5.634	2	6 4 9.11	2.1193	19 49 42.9	1.607
3	4 26 42.79	2.0233	16 57 46.0	5.561	3	6 6 16.32	2.1210	19 51 16.5	1.514
4	4 28 44.25	2.0254	17 3 17.4	5.486	4	6 8 23.63	2.1227	19 52 44.6	1.422
5	4 30 45.84	2.0277	17 8 44.3	5.411	5	6 10 31.04	2.1243	19 54 7.1	1.328
6	4 32 47.57	2.0299	17 14 6.7	5.336	6	6 12 38.55	2.1260	19 55 23.9	1.233
7	4 34 49.43	2.0321	17 19 24.6	5.261	7	6 14 46.16	2.1277	19 56 35.1	1.140
8	4 36 51.42	2.0343	17 24 38.0	5.185	8	6 16 53.87	2.1293	19 57 40.7	1.046
9	4 38 53.54	2.0364	17 29 46.8	5.108	9	6 19 1.67	2.1308	19 58 40.6	0.952
10	4 40 55.79	2.0386	17 34 51.0	5.032	10	6 21 9.57	2.1324	19 59 34.9	0.857
11	4 42 58.17	2.0408	17 39 50.6	4.954	11	6 23 17.56	2.1340	20 0 23.4	0.761
12	4 45 0.69	2.0431	17 44 45.5	4.876	12	6 25 25.65	2.1356	20 1 6.2	0.666
13	4 47 3.34	2.0452	17 49 35.7	4.798	13	6 27 33.83	2.1371	20 1 43.3	0.571
14	4 49 6.11	2.0473	17 54 21.2	4.718	14	6 29 42.10	2.1385	20 2 14.7	0.475
15	4 51 9.02	2.0496	17 59 1.9	4.639	15	6 31 50.45	2.1399	20 2 40.3	0.379
16	4 53 12.06	2.0518	18 3 37.9	4.560	16	6 33 58.89	2.1414	20 3 0.2	0.283
17	4 55 15.23	2.0539	18 8 9.1	4.479	17	6 36 7.42	2.1429	20 3 14.3	0.187
18	4 57 18.53	2.0561	18 12 35.4	4.398	18	6 38 16.04	2.1443	20 3 22.6	0.090
19	4 59 21.96	2.0583	18 16 56.9	4.318	19	6 40 24.74	2.1457	20 3 25.1	0.007
20	5 1 25.52	2.0604	18 21 13.6	4.237	20	6 42 33.52	2.1470	20 3 21.8	0.103
21	5 3 29.21	2.0625	18 25 25.3	4.154	21	6 44 42.38	2.1483	20 3 12.7	0.200
22	5 5 33.02	2.0646	18 29 32.1	4.070	22	6 46 51.32	2.1497	20 2 57.8	0.298
23	5 7 36.96	2.0668	18 33 33.9	3.988	23	6 49 0.34	2.1509	20 2 37.0	0.396
24	5 9 41.03	2.0689	N.18 37 30.7	3.905	24	6 51 9.43	2.1522	N.20 2 10.3	0.493

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 29.			
	h m s	s	° ′ ″	″
0	6 51 9.43	2.1522	N.20 2 10.3	0.493
1	6 53 18.60	2.1534	20 1 37.8	0.591
2	6 55 27.84	2.1547	20 0 59.4	0.689
3	6 57 37.16	2.1559	20 0 15.1	0.788
4	6 59 46.55	2.1570	19 59 24.9	0.885
5	7 1 56.00	2.1581	19 58 28.9	0.983
6	7 4 5.52	2.1593	19 57 26.9	1.083
7	7 6 15.11	2.1604	19 56 19.0	1.181
8	7 8 24.77	2.1615	19 55 5.2	1.279
9	7 10 34.49	2.1625	19 53 45.5	1.378
10	7 12 44.27	2.1636	19 52 19.8	1.478
11	7 14 54.12	2.1647	19 50 48.2	1.576
12	7 17 4.03	2.1657	19 49 10.7	1.675
13	7 19 14.00	2.1666	19 47 27.2	1.774
14	7 21 24.02	2.1675	19 45 37.8	1.873
15	7 23 34.10	2.1684	19 43 42.4	1.973
16	7 25 44.23	2.1693	19 41 41.1	2.072
17	7 27 54.42	2.1703	19 39 33.8	2.172
18	7 30 4.66	2.1712	19 37 20.5	2.271
19	7 32 14.96	2.1720	19 35 1.3	2.370
20	7 34 25.30	2.1728	19 32 36.1	2.470
21	7 36 35.69	2.1736	19 30 4.9	2.569
22	7 38 46.13	2.1743	19 27 27.8	2.668
23	7 40 56.61	2.1751	N.19 24 44.7	2.768
	MONDAY 30.			
0	7 43 7.14	2.1758	N.19 21 55.6	2.868
1	7 45 17.71	2.1765	19 19 0.6	2.967
2	7 47 28.32	2.1773	19 15 59.6	3.067
3	7 49 38.98	2.1780	19 12 52.6	3.166
4	7 51 49.68	2.1787	19 9 39.7	3.265
5	7 54 0.42	2.1793	19 6 20.8	3.365
6	7 56 11.19	2.1798	19 2 55.9	3.464
7	7 58 22.00	2.1805	18 59 25.1	3.563
8	8 0 32.85	2.1811	18 55 48.3	3.663
9	8 2 43.73	2.1817	18 52 5.6	3.761
10	8 4 54.65	2.1823	18 48 17.0	3.860
11	8 7 5.60	2.1828	18 44 22.4	3.959
12	8 9 16.58	2.1833	18 40 21.9	4.058
13	8 11 27.59	2.1838	18 36 15.5	4.157
14	8 13 38.64	2.1843	18 32 3.1	4.256
15	8 15 49.71	2.1848	18 27 44.8	4.354
16	8 18 0.81	2.1853	18 23 20.6	4.452
17	8 20 11.94	2.1858	18 18 50.6	4.549
18	8 22 23.10	2.1862	18 14 14.7	4.648
19	8 24 34.28	2.1866	18 9 32.8	4.747
20	8 26 45.49	2.1871	18 4 45.1	4.844
21	8 28 56.73	2.1875	17 59 51.5	4.942
22	8 31 7.99	2.1878	17 54 52.1	5.038
23	8 33 19.27	2.1882	17 49 46.9	5.136
24	8 35 30.57	2.1885	N.17 44 35.8	5.233
	TUESDAY, MAY 1.			
	h m s	s	° ′ ″	″
0	8 35 30.57	2.1885	N.17 44 35.8	5.233

PHASES OF THE MOON.

			d	h	m
☽	First Quarter . . .	April	1	16	2.0
○	Full Moon		8	18	12.4
☾	Last Quarter		15	8	36.5
●	New Moon		23	4	6.5

			d	h
☾	Perigee	April	9	21.4
☾	Apogee		25	0.9

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	III^h	P. L. of Diff.	VI^h	P. L. of Diff.	IX^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	SUN	W.	82 31 20	3339	83 54 47	3327	85 18 27	3315	86 42 21	3303
	MARS	W.	52 39 2	3253	54 4 8	3241	55 29 29	3228	56 55 5	3215
	JUPITER	W.	29 50 3	3077	31 18 41	3061	32 47 38	3047	34 16 52	3032
	Aldebaran	W.	24 51 56	2961	26 22 58	2950	27 54 13	2939	29 25 42	2928
	Regulus	E.	55 17 27	2960	53 46 24	2950	52 15 8	2938	50 43 37	2927
	Spica	E.	108 59 6	2992	107 28 43	2981	105 58 6	2970	104 27 15	2958
2	SUN	W.	93 45 39	3234	95 11 8	3219	96 36 55	3204	98 3 0	3188
	MARS	W.	64 7 5	3144	65 34 21	3129	67 1 56	3114	68 29 49	3097
	JUPITER	W.	41 47 42	2957	43 18 49	2941	44 50 16	2926	46 22 2	2909
	Aldebaran	W.	37 6 59	2864	38 40 4	2849	40 13 28	2836	41 47 9	2821
	Regulus	E.	43 2 16	2863	41 29 10	2849	39 55 46	2835	38 22 4	2821
	Spica	E.	96 49 5	2892	95 16 36	2878	93 43 49	2864	92 10 44	2849
3	SUN	W.	105 18 19	3103	106 46 25	3085	108 14 53	3067	109 43 43	3049
	MARS	W.	75 54 18	3012	77 24 16	2994	78 54 36	2976	80 25 19	2958
	JUPITER	W.	54 6 12	2825	55 40 8	2807	57 14 27	2789	58 49 9	2772
	Aldebaran	W.	49 40 36	2742	51 16 20	2725	52 52 27	2708	54 28 56	2691
	Regulus	E.	30 28 36	2741	28 52 51	2725	27 16 45	2708	25 40 16	2691
	Spica	E.	84 20 24	2771	82 45 18	2754	81 9 50	2738	79 34 0	2721
4	SUN	W.	117 13 37	2954	118 44 47	2935	120 16 22	2915	121 48 22	2896
	MARS	W.	88 4 46	2863	89 37 53	2844	91 11 24	2823	92 45 22	2804
	JUPITER	W.	66 48 39	2678	68 25 48	2660	70 3 22	2641	71 41 21	2621
	Aldebaran	W.	62 37 14	2602	64 16 7	2583	65 55 25	2564	67 35 9	2546
	Pollux	W.	20 28 25	3054	21 57 31	2975	23 28 15	2907	25 0 25	2848
	Spica	E.	71 29 8	2634	69 50 59	2616	68 12 26	2598	66 33 28	2581
5	MARS	W.	100 41 33	2705	102 18 6	2686	103 55 4	2666	105 32 29	2647
	JUPITER	W.	79 57 52	2525	81 38 30	2507	83 19 34	2488	85 1 4	2469
	Aldebaran	W.	76 0 16	2452	77 42 37	2434	79 25 24	2415	81 8 38	2396
	Pollux	W.	32 57 51	2632	34 36 3	2598	36 15 1	2567	37 54 42	2537
	Spica	E.	58 12 36	2492	56 31 12	2476	54 49 25	2459	53 7 14	2442
	Antares	E.	104 4 33	2514	102 23 39	2494	100 42 17	2475	99 0 28	2456
6	JUPITER	W.	93 35 11	2378	95 19 18	2360	97 3 50	2343	98 48 47	2326
	Aldebaran	W.	89 51 21	2306	91 37 12	2289	93 23 28	2271	95 10 10	2255
	Pollux	W.	46 22 52	2407	48 6 17	2384	49 50 15	2362	51 34 45	2341
	Spica	E.	44 30 38	2366	42 46 15	2353	41 1 33	2342	39 16 34	2330
	Antares	E.	90 24 46	2364	88 40 20	2347	86 55 29	2330	85 10 13	2313
7	Pollux	W.	60 24 30	2246	62 11 49	2230	63 59 31	2214	65 47 38	2199
	Regulus	W.	24 0 56	2177	25 49 58	2163	27 39 22	2149	29 29 7	2136
	Spica	E.	30 28 11	2297	28 42 7	2298	26 56 4	2302	25 10 7	2311
	Antares	E.	76 18 6	2239	74 30 36	2226	72 42 47	2213	70 54 39	2201
8	Pollux	W.	74 53 29	2135	76 43 35	2124	78 33 57	2114	80 24 35	2106
	Regulus	W.	38 42 38	2078	40 34 11	2068	42 26 0	2059	44 18 2	2051
	Antares	E.	61 49 55	2154	60 0 18	2147	58 10 31	2141	56 20 35	2137
	α Aquilæ	E.	108 11 52	2660	106 34 18	2638	104 56 15	2620	103 17 47	2603

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	SUN	W.	88 6 29	3289	89 30 53	3277	90 55 32	3263	92 20 27	3248
	MARS	W.	58 20 56	3202	59 47 3	3188	61 13 27	3174	62 40 7	3159
	JUPITER	W.	35 46 25	3018	37 16 16	3002	38 46 26	2988	40 16 54	2972
	Aldebaran	W.	30 57 26	2916	32 29 25	2903	34 1 40	2891	35 34 11	2877
	Regulus	E.	49 11 53	2915	47 39 53	2902	46 7 37	2890	44 35 5	2877
	Spica	E.	102 56 9	2945	101 24 47	2933	99 53 10	2920	98 21 16	2906
2	SUN	W.	99 29 24	3171	100 56 8	3155	102 23 11	3138	103 50 35	3121
	MARS	W.	69 58 2	3081	71 26 35	3065	72 55 28	3047	74 24 43	3030
	JUPITER	W.	47 54 10	2893	49 26 38	2876	50 59 28	2859	52 32 39	2842
	Aldebaran	W.	43 21 10	2805	44 55 31	2790	46 30 12	2775	48 5 13	2758
	Regulus	E.	36 48 3	2805	35 13 41	2790	33 39 0	2775	32 3 59	2758
	Spica	E.	90 37 20	2834	89 3 37	2818	87 29 33	2803	85 55 9	2787
3	SUN	W.	111 12 55	3031	112 42 30	3012	114 12 28	2992	115 42 51	2974
	MARS	W.	81 56 24	2939	83 27 54	2920	84 59 47	2902	86 32 4	2882
	JUPITER	W.	60 24 14	2753	61 59 44	2735	63 35 37	2716	65 11 56	2698
	Aldebaran	W.	56 5 48	2674	57 43 3	2655	59 20 43	2638	60 58 46	2620
	Regulus	E.	24 3 24	2673	22 26 8	2656	20 48 29	2638	19 10 26	2621
	Spica	E.	77 57 48	2704	76 21 13	2687	74 44 15	2669	73 6 53	2652
4	SUN	W.	123 20 46	2877	124 53 35	2856	126 26 50	2837	128 0 30	2818
	MARS	W.	94 19 44	2784	95 54 33	2765	97 29 47	2745	99 5 27	2726
	JUPITER	W.	73 19 47	2602	74 58 39	2583	76 37 57	2564	78 17 41	2546
	Aldebaran	W.	69 15 18	2528	70 55 53	2509	72 36 54	2490	74 18 22	2471
	Pollux	W.	26 33 50	2796	28 8 23	2749	29 43 58	2707	31 20 28	2668
	Spica	E.	64 54 7	2563	63 14 21	2545	61 34 10	2528	59 53 35	2510
5	MARS	W.	107 10 20	2629	108 48 36	2610	110 27 18	2591	112 6 25	2572
	JUPITER	W.	86 43 1	2450	88 25 25	2432	90 8 14	2413	91 51 30	2396
	Aldebaran	W.	82 52 18	2378	84 36 25	2360	86 20 57	2342	88 5 56	2324
	Pollux	W.	39 35 4	2508	41 16 6	2482	42 57 45	2456	44 40 1	2431
	Spica	E.	51 24 39	2426	49 41 42	2410	47 58 22	2395	46 14 40	2381
	Antares	E.	97 18 13	2437	95 35 31	2418	93 52 22	2400	92 8 47	2382
6	JUPITER	W.	100 34 8	2309	102 19 54	2294	104 6 3	2278	105 52 35	2263
	Aldebaran	W.	96 57 16	2238	98 44 47	2223	100 32 41	2207	102 20 58	2191
	Pollux	W.	53 19 45	2321	55 5 14	2301	56 51 12	2282	58 37 38	2264
	Spica	E.	37 31 18	2320	35 45 48	2311	34 0 4	2304	32 14 11	2300
	Antares	E.	83 24 33	2298	81 38 30	2282	79 52 4	2267	78 5 16	2252
7	Pollux	W.	67 36 7	2184	69 24 58	2171	71 14 9	2158	73 3 40	2146
	Regulus	W.	31 19 12	2123	33 9 37	2111	35 0 20	2099	36 51 21	2088
	Spica	E.	23 24 23	2326	21 39 2	2350	19 54 15	2386	18 10 20	2437
	Antares	E.	69 6 13	2190	67 17 30	2180	65 28 32	2171	63 39 20	2162
8	Pollux	W.	82 15 25	2097	84 6 29	2090	85 57 44	2084	87 49 8	2078
	Regulus	W.	46 10 17	2043	48 2 44	2036	49 55 22	2030	51 48 10	2025
	Antares	E.	54 30 32	2133	52 40 23	2131	50 50 11	2130	48 59 57	2130
	a Aquilæ	E.	101 38 56	2588	99 59 45	2575	98 20 15	2564	96 40 30	2554

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Pollux	W.	89 40 41	2073	91 32 22	2069	93 24 9	2066	95 16 0	2064
	Regulus	W.	53 41 6	2020	55 34 9	2016	57 27 19	2012	59 20 34	2010
	Antares	E.	47 9 44	2132	45 19 34	2136	43 29 29	2141	41 39 32	2148
	a Aquilæ	E.	95 0 32	2546	93 20 23	2540	91 40 5	2536	89 59 42	2534
10	Regulus	W.	68 47 26	2008	70 40 48	2010	72 34 6	2012	74 27 21	2015
	Spica	W.	16 18 28	2363	18 2 56	2300	19 48 56	2254	21 36 4	2220
	Antares	E.	32 33 49	2226	30 46 0	2254	28 58 52	2286	27 12 33	2327
	a Aquilæ	E.	81 37 44	2548	79 57 37	2556	78 17 41	2566	76 38 0	2578
11	Regulus	W.	83 51 58	2042	85 44 27	2050	87 36 44	2057	89 28 50	2066
	Spica	W.	30 40 37	2149	32 30 22	2145	34 20 12	2144	36 10 4	2145
	a Aquilæ	E.	68 24 36	2670	66 47 16	2695	65 10 29	2723	63 34 19	2753
	Fomalhaut	E.	101 14 55	2318	99 29 21	2322	97 43 53	2327	95 58 33	2333
	SATURN	E.	108 21 1	2072	106 29 18	2079	104 37 47	2087	102 46 27	2095
12	Regulus	W.	98 45 47	2115	100 36 23	2126	102 26 42	2138	104 16 43	2151
	Spica	W.	45 18 15	2171	47 7 27	2179	48 56 27	2188	50 45 13	2198
	a Aquilæ	E.	55 44 48	2953	54 13 36	3005	52 43 29	3061	51 14 31	3122
	Fomalhaut	E.	87 14 44	2382	85 30 43	2394	83 47 0	2408	82 3 36	2423
	SATURN	E.	93 33 20	2145	91 43 29	2157	89 53 56	2169	88 4 41	2181
	a Pegasi	E.	102 15 58	2463	100 33 52	2470	98 51 56	2478	97 10 12	2487
	SUN	E.	134 6 22	2439	132 23 43	2450	130 41 19	2461	128 59 11	2473
13	Spica	W.	59 45 8	2254	61 32 15	2267	63 19 3	2280	65 5 32	2294
	Fomalhaut	E.	73 32 16	2509	71 51 15	2530	70 10 43	2550	68 30 39	2572
	SATURN	E.	79 3 11	2247	77 15 53	2261	75 28 56	2275	73 42 19	2290
	a Pegasi	E.	88 45 19	2550	87 5 15	2565	85 25 32	2580	83 46 10	2597
	SUN	E.	120 32 59	2540	118 52 42	2555	117 12 45	2569	115 33 8	2585
14	Spica	W.	73 52 53	2364	75 37 19	2379	77 21 24	2394	79 5 7	2408
	Antares	W.	28 53 40	2578	30 33 5	2570	32 12 41	2565	33 52 24	2562
	Fomalhaut	E.	60 18 23	2699	58 41 41	2728	57 5 38	2758	55 30 15	2790
	SATURN	E.	64 54 43	2364	63 10 17	2380	61 26 13	2395	59 42 31	2410
	a Pegasi	E.	75 35 27	2693	73 58 38	2715	72 22 18	2737	70 46 27	2761
	SUN	E.	107 20 21	2663	105 42 52	2679	104 5 44	2696	102 28 59	2712
15	Spica	W.	87 38 25	2484	89 20 1	2499	91 1 16	2514	92 42 10	2529
	Antares	W.	42 10 47	2581	43 50 8	2589	45 29 18	2597	47 8 17	2605
	Fomalhaut	E.	47 44 33	2981	46 13 56	3026	44 44 16	3076	43 15 37	3129
	SATURN	E.	51 9 29	2487	49 27 57	2502	47 46 47	2517	46 5 57	2532
	a Pegasi	E.	62 55 17	2891	61 22 47	2920	59 50 54	2951	58 19 40	2984
	SUN	E.	94 30 34	2793	92 55 57	2810	91 21 42	2825	89 47 47	2842
16	Spica	W.	101 1 32	2602	102 40 24	2616	104 18 57	2631	105 57 10	2645
	Antares	W.	55 20 0	2656	56 57 39	2667	58 35 3	2678	60 12 12	2689
	Fomalhaut	E.	36 10 13	3478	34 49 24	3571	33 30 18	3675	32 13 4	3793
	SATURN	E.	37 46 54	2604	36 8 5	2619	34 29 36	2632	32 51 25	2646
	a Pegasi	E.	50 54 13	3171	49 27 29	3216	48 1 39	3263	46 36 44	3314
	SUN	E.	82 3 22	2920	80 31 29	2935	78 59 55	2950	77 28 40	2966

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Pollux	W.	97 7 55	2062	98 59 53	2062	100 51 51	2063	102 43 48	2063
	Regulus	W.	61 13 53	2008	63 7 15	2007	65 0 38	2007	66 54 2	2007
	Antares	E.	39 49 46	2158	38 0 15	2170	36 11 2	2185	34 22 12	2203
	a Aquilæ	E.	88 19 16	2533	86 38 48	2534	84 58 22	2537	83 18 0	2541
10	Regulus	W.	76 20 31	2019	78 13 35	2025	80 6 31	2030	81 59 19	2035
	Spica	W.	23 24 2	2195	25 12 37	2177	27 1 39	2164	28 51 1	2155
	Antares	E.	25 27 13	2378	23 43 6	2440	22 0 28	2518	20 19 40	2621
	a Aquilæ	E.	74 58 35	2592	73 19 29	2609	71 40 46	2627	70 2 27	2647
11	Regulus	W.	91 20 42	2074	93 12 21	2084	95 3 45	2094	96 54 54	2104
	Spica	W.	37 59 54	2148	39 49 40	2152	41 39 20	2157	43 28 52	2163
	a Aquilæ	E.	61 58 50	2786	60 24 4	2823	58 50 6	2863	57 17 0	2906
	Fomalhaut	E.	94 13 22	2341	92 28 22	2350	90 43 35	2359	88 59 1	2370
	SATURN	E.	100 55 21	2104	99 4 28	2114	97 13 50	2124	95 23 27	2134
12	Regulus	W.	106 6 25	2163	107 55 48	2176	109 44 52	2188	111 33 37	2202
	Spica	W.	52 33 44	2208	54 22 0	2219	56 10 0	2230	57 57 43	2242
	a Aquilæ	E.	49 46 48	3188	48 20 25	3262	46 55 29	3342	45 32 6	3431
	Fomalhaut	E.	80 20 34	2438	78 37 53	2455	76 55 36	2472	75 13 43	2490
	SATURN	E.	86 15 44	2193	84 27 6	2206	82 38 48	2219	80 50 49	2233
	a Pegasi	E.	95 28 41	2498	93 47 25	2510	92 6 25	2522	90 25 43	2536
	SUN	E.	127 17 20	2486	125 35 47	2499	123 54 32	2512	122 13 36	2526
13	Spica	W.	66 51 41	2307	68 37 30	2321	70 22 58	2335	72 8 6	2350
	Fomalhaut	E.	66 51 6	2595	65 12 4	2620	63 33 36	2645	61 55 42	2671
	SATURN	E.	71 56 5	2304	70 10 12	2319	68 24 40	2334	66 39 31	2349
	a Pegasi	E.	82 7 11	2615	80 28 37	2633	78 50 27	2653	77 12 44	2672
	SUN	E.	113 53 53	2600	112 14 58	2615	110 36 24	2632	108 58 12	2647
14	Spica	W.	80 48 30	2424	82 31 30	2439	84 14 10	2454	85 56 28	2469
	Antares	W.	35 32 11	2563	37 11 57	2565	38 51 40	2569	40 31 17	2575
	Fomalhaut	E.	53 55 34	2824	52 21 37	2860	50 48 27	2897	49 16 4	2938
	SATURN	E.	57 59 11	2426	56 16 13	2441	54 33 37	2456	52 51 22	2472
	a Pegasi	E.	69 11 8	2785	67 36 20	2810	66 2 5	2835	64 28 23	2863
	SUN	E.	100 52 35	2728	99 16 32	2744	97 40 51	2761	96 5 32	2777
15	Spica	W.	94 22 43	2543	96 2 56	2558	97 42 48	2573	99 22 20	2588
	Antares	W.	48 47 5	2615	50 25 39	2625	52 4 0	2635	53 42 7	2646
	Fomalhaut	E.	41 48 3	3186	40 21 37	3250	38 56 27	3318	37 32 36	3394
	SATURN	E.	44 25 28	2546	42 45 19	2561	41 5 31	2576	39 26 3	2590
	a Pegasi	E.	56 49 7	3017	55 19 16	3052	53 50 8	3090	52 21 46	3130
	SUN	E.	88 14 14	2857	86 41 0	2874	85 8 8	2889	83 35 35	2905
16	Spica	W.	107 35 4	2659	109 12 39	2673	110 49 55	2686	112 26 54	2700
	Antares	W.	61 49 7	2701	63 25 46	2711	65 2 11	2723	66 38 21	2734
	Fomalhaut	E.	30 57 54	3926	29 45 0	4078	28 34 37	4253	27 27 1	4456
	SATURN	E.	31 13 32	2660	29 35 58	2673	27 58 42	2686	26 21 43	2699
	a Pegasi	E.	45 12 49	3369	43 49 57	3427	42 28 11	3491	41 7 37	3561
	SUN	E.	75 57 44	2980	74 27 6	2995	72 56 47	3010	71 26 46	3023

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
17	Antares	W.	68 14 16	2745	69 49 56	2756	71 25 22	2767	73 0 34	2778
	α Pegasi	E.	39 48 20	3637	38 30 26	3720	37 14 0	3812	35 59 10	3915
	SUN	E.	69 57 2	3037	68 27 35	3051	66 58 25	3065	65 29 32	3078
18	Antares	W.	80 53 2	2830	82 26 51	2841	84 0 26	2850	85 33 49	2860
	SUN	E.	58 9 8	3142	56 41 49	3154	55 14 45	3166	53 47 55	3178
19	Antares	W.	93 17 36	2907	94 49 46	2916	96 21 44	2925	97 53 31	2935
	α Aquilæ	W.	50 31 10	3800	51 46 12	3770	53 1 46	3742	54 17 49	3716
	SUN	E.	46 37 16	3236	45 11 49	3246	43 46 34	3257	42 21 32	3269
20	α Aquilæ	W.	60 43 52	3625	62 1 59	3612	63 20 20	3602	64 38 52	3592
	SUN	E.	35 19 39	3324	33 55 55	3335	32 32 24	3347	31 9 7	3359
25	SUN	W.	20 33 27	3575	21 52 29	3561	23 11 46	3550	24 31 15	3541
	Pollux	E.	58 38 45	3149	57 11 35	3153	55 44 29	3156	54 17 27	3159
	Regulus	E.	94 13 3	3078	92 44 26	3078	91 15 49	3078	89 47 13	3079
26	SUN	W.	31 10 53	3507	32 31 10	3502	33 51 32	3496	35 12 1	3491
	Pollux	E.	47 3 11	3175	45 36 32	3178	44 9 57	3183	42 43 27	3188
	Regulus	E.	82 24 11	3076	80 55 32	3074	79 26 51	3073	77 58 8	3071
27	SUN	W.	41 55 51	3464	43 16 55	3459	44 38 5	3453	45 59 22	3447
	MARS	W.	19 28 54	3490	20 49 29	3466	22 10 31	3445	23 31 57	3426
	Pollux	E.	35 32 30	3218	34 6 43	3228	32 41 7	3238	31 15 43	3251
	Regulus	E.	70 33 53	3057	69 4 51	3054	67 35 45	3050	66 6 34	3046
28	SUN	W.	52 47 33	3413	54 9 35	3405	55 31 46	3397	56 54 6	3388
	MARS	W.	30 23 48	3354	31 46 57	3341	33 10 21	3329	34 33 59	3318
	Aldebaran	W.	21 30 50	3022	23 0 36	3015	24 30 30	3009	26 0 32	3001
	JUPITER	W.	21 8 43	3183	22 35 12	3167	24 2 1	3152	25 29 8	3138
	Regulus	E.	58 39 11	3019	57 9 22	3013	55 39 25	3006	54 9 20	2999
29	SUN	W.	63 48 19	3341	65 11 43	3331	66 35 19	3319	67 59 8	3308
	MARS	W.	41 35 34	3258	43 0 34	3245	44 25 50	3234	45 51 19	3221
	Aldebaran	W.	33 33 11	2959	35 4 15	2950	36 35 31	2939	38 7 0	2930
	JUPITER	W.	32 48 45	3074	34 17 26	3061	35 46 23	3050	37 15 34	3037
	Regulus	E.	46 36 33	2958	45 5 28	2949	43 34 11	2939	42 2 41	2929
	Spica	E.	100 23 33	2988	98 53 5	2978	97 22 25	2969	95 51 33	2958
30	SUN	W.	75 1 39	3246	76 26 54	3232	77 52 25	3218	79 18 13	3204
	MARS	W.	53 2 38	3154	54 29 42	3139	55 57 4	3125	57 24 43	3110
	Aldebaran	W.	45 47 44	2873	47 20 37	2860	48 53 47	2848	50 27 12	2835
	JUPITER	W.	44 45 27	2972	46 16 15	2958	47 47 20	2945	49 18 42	2930
	Regulus	E.	34 21 54	2873	32 49 1	2861	31 15 52	2848	29 42 26	2835
	Spica	E.	88 13 48	2902	86 41 31	2890	85 8 59	2877	83 36 10	2864

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	XVIII^{h}	P. L. of Diff.	XXI^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
17	Antares	W.	74 35 31	2788	76 10 15	2799	77 44 44	2809	79 19 0	2820
	a Pegasi	E.	34 46 5	4029	33 34 54	4156	32 25 46	4299	31 18 53	4463
	Sun	E.	64 0 56	3091	62 32 35	3105	61 4 31	3117	59 36 42	3129
18	Antares	W.	87 6 59	2870	88 39 57	2880	90 12 42	2889	91 45 15	2898
	Sun	E.	52 21 20	3190	50 54 59	3201	49 28 51	3213	48 2 57	3224
19	Antares	W.	99 25 6	2943	100 56 31	2951	102 27 45	2960	103 58 48	2969
	a Aquilæ	W.	55 34 19	3694	56 51 12	3674	58 8 27	3656	59 26 1	3640
	Sun	E.	40 56 44	3280	39 32 9	3290	38 7 46	3301	36 43 36	3312
20	*a* Aquilæ	W.	65 57 35	3583	67 16 28	3576	68 35 29	3569	69 54 37	3564
	Sun	E.	29 46 4	3372	28 23 16	3386	27 0 43	3400	25 38 26	3415
25	Sun	W.	25 50 54	3532	27 10 43	3525	28 30 39	3518	29 50 43	3513
	Pollux	E.	52 50 28	3162	51 23 33	3165	49 56 42	3168	48 29 54	3172
	Regulus	E.	88 18 38	3078	86 50 2	3078	85 21 26	3078	83 52 49	3077
26	Sun	W.	36 32 35	3486	37 53 15	3480	39 14 1	3475	40 34 53	3470
	Pollux	E.	41 17 3	3192	39 50 44	3198	38 24 32	3204	36 58 27	3210
	Regulus	E.	76 29 23	3069	75 0 35	3067	73 31 45	3064	72 2 51	3061
27	Sun	W.	47 20 45	3440	48 42 16	3434	50 3 54	3428	51 25 39	3420
	Mars	W.	24 53 44	3409	26 15 50	3394	27 38 14	3380	29 0 53	3366
	Pollux	E.	29 50 34	3265	28 25 42	3283	27 1 11	3305	25 37 5	3331
	Regulus	E.	64 37 18	3041	63 7 56	3036	61 38 28	3031	60 8 53	3025
28	Sun	W.	58 16 36	3379	59 39 16	3371	61 2 6	3361	62 25 7	3351
	Mars	W.	35 57 50	3305	37 21 56	3294	38 46 15	3282	40 10 47	3270
	Aldebaran	W.	27 30 44	2993	29 1 5	2985	30 31 37	2977	32 2 19	2969
	Jupiter	W.	26 56 32	3124	28 24 12	3111	29 52 8	3099	31 20 19	3087
	Regulus	E.	52 39 6	2992	51 8 43	2984	49 38 10	2976	48 7 27	2967
29	Sun	W.	69 23 10	3297	70 47 25	3284	72 11 55	3272	73 36 39	3259
	Mars	W.	47 17 4	3208	48 43 4	3195	50 9 19	3182	51 35 50	3168
	Aldebaran	W.	39 38 41	2920	41 10 35	2908	42 42 44	2897	44 15 6	2885
	Jupiter	W.	38 45 1	3025	40 14 43	3011	41 44 42	2999	43 14 56	2985
	Regulus	E.	40 30 59	2919	38 59 4	2908	37 26 56	2896	35 54 32	2885
	Spica	E.	94 20 27	2948	92 49 9	2936	91 17 36	2925	89 45 49	2914
30	Sun	W.	80 44 18	3189	82 10 40	3173	83 37 21	3158	85 4 20	3143
	Mars	W.	58 52 40	3095	60 20 56	3080	61 49 30	3064	63 18 24	3048
	Aldebaran	W.	52 0 55	2821	53 34 55	2808	55 9 13	2793	56 43 50	2779
	Jupiter	W.	50 50 23	2916	52 22 22	2901	53 54 40	2886	55 27 17	2870
	Regulus	E.	28 8 44	2821	26 34 44	2808	25 0 26	2794	23 25 50	2779
	Spica	E.	82 3 5	2851	80 29 43	2837	78 56 3	2823	77 22 5	2809

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S					Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.	Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.			
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Tues.	1	2 31 5.85	9.529	N.14 52 48.0	+ 45.78	15 53.99	65.98	2 54.70	0.328
Wed.	2	2 34 54.77	9.550	15 10 59.1	45.16	15 53.76	66.06	3 2.30	0.306
Thur.	3	2 38 44.22	9.572	15 28 55.1	44.52	15 53.53	66.14	3 9.39	0.284
Frid.	4	2 42 34.20	9.594	15 46 35.8	+ 43.87	15 53.30	66.23	3 15.95	0.262
Sat.	5	2 46 24.73	9.617	16 4 0.7	43.21	15 53.08	66.31	3 21.96	0.239
SUN.	6	2 50 15.79	9.640	16 21 9.6	42.53	15 52.85	66.39	3 27.44	0.216
Mon.	7	2 54 7.42	9.663	16 38 2.1	+ 41.84	15 52.63	66.47	3 32.35	0.193
Tues.	8	2 57 59.60	9.687	16 54 38.1	41.14	15 52.41	66.55	3 36.72	0.170
Wed.	9	3 1 52.36	9.711	17 10 57.1	40.44	15 52.20	66.63	3 40.50	0.146
Thur.	10	3 5 45.69	9.735	17 26 59.2	+ 39.72	15 51.98	66.71	3 43.72	0.122
Frid.	11	3 9 39.60	9.759	17 42 43.6	38.98	15 51.77	66.79	3 46.35	0.098
Sat.	12	3 13 34.11	9.783	17 58 10.3	38.23	15 51.55	66.87	3 48.40	0.073
SUN.	13	3 17 29.21	9.808	18 13 19.0	+ 37.48	15 51.34	66.95	3 49.85	0.048
Mon.	14	3 21 24.91	9.833	18 28 9.5	36.72	15 51.13	67.03	3 50.70	0.023
Tues.	15	3 25 21.20	9.858	18 42 41.3	35.94	15 50.92	67.11	3 50.96	0.001
Wed.	16	3 29 18.09	9.884	18 56 54.5	+ 35.15	15 50.71	67.19	3 50.63	0.025
Thur.	17	3 33 15.56	9.908	19 10 48.4	34.34	15 50.51	67.27	3 49.71	0.050
Frid.	18	3 37 13.62	9.932	19 24 23.1	33.52	15 50.32	67.35	3 48.23	0.074
Sat.	19	3 41 12.25	9.956	19 37 38.0	+ 32.70	15 50.13	67.43	3 46.15	0.098
SUN.	20	3 45 11.45	9.979	19 50 33.1	31.87	15 49.94	67.51	3 43.52	0.121
Mon.	21	3 49 11.20	10.002	20 3 7.7	31.02	15 49.75	67.59	3 40.33	0.144
Tues.	22	3 53 11.50	10.025	20 15 22.0	+ 30.16	15 49.57	67.66	3 36.59	0.167
Wed.	23	3 57 12.35	10.047	20 27 15.6	29.29	15 49.40	67.74	3 32.31	0.189
Thur.	24	4 1 13.72	10.068	20 38 48.2	28.41	15 49.23	67.81	3 27.50	0.211
Frid.	25	4 5 15.61	10.089	20 49 59.5	+ 27.52	15 49.06	67.89	3 22.19	0.232
Sat.	26	4 9 17.99	10.110	21 0 49.4	26.62	15 48.90	67.96	3 16.38	0.252
SUN.	27	4 13 20.85	10.130	21 11 17.6	25.71	15 48.74	68.03	3 10.08	0.272
Mon.	28	4 17 24.17	10.149	21 21 23.7	+ 24.79	15 48.59	68.09	3 3.65	0.291
Tues.	29	4 21 27.98	10.167	21 31 7.8	23.86	15 48.45	68.16	2 56.12	0.310
Wed.	30	4 25 32.22	10.185	21 40 29.4	22.92	15 48.31	68.22	2 48.45	0.328
Thur.	31	4 29 36.87	10.203	21 49 28.4	21.98	15 48.17	68.29	2 40.38	0.345
Frid.	32	4 33 41.95	10.219	N.21 58 4.6	+ 21.03	15 48.03	68.35	2 31.88	0.362

NOTE.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.19$ from the sidereal time. The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ′ ″	″	m s	s	h m s
Tues.	1	2 31 6.31	9.529	N.14 52 50.2	+45.78	2 54.72	0.328	2 34 1.03
Wed.	2	2 34 55.26	9.550	15 11 1.4	45.16	3 2.32	0.306	2 37 57.58
Thur.	3	2 38 44.73	9.572	15 28 57.5	44.52	3 9.40	0.284	2 41 54.13
Frid.	4	2 42 34.73	9.594	15 46 38.2	+43.87	3 15.96	0.262	2 45 50.69
Sat.	5	2 46 25.27	9.617	16 4 3.1	43.21	3 21.97	0.239	2 49 47.24
SUN.	6	2 50 16.35	9.640	16 21 12.1	42.53	3 27.45	0.216	2 53 43.80
Mon.	7	2 54 7.99	9.663	16 38 4.6	+41.84	3 32.36	0.193	2 57 40.35
Tues.	8	2 58 0.18	9.687	16 54 40.6	41.14	3 36.73	0.170	3 1 36.91
Wed.	9	3 1 52.95	9.711	17 10 59.6	40.44	3 40.51	0.146	3 5 33.46
Thur.	10	3 5 46.29	9.735	17 27 1.6	+39.72	3 43.73	0.122	3 9 30.02
Frid.	11	3 9 40.21	9.759	17 42 46.0	38.98	3 46.36	0.098	3 13 26.57
Sat.	12	3 13 34.73	9.783	17 58 12.7	38.23	3 48.40	0.073	3 17 23.13
SUN.	13	3 17 29.83	9.808	18 13 21.4	+37.48	3 49.85	0.048	3 21 19.68
Mon.	14	3 21 25.54	9.833	18 28 11.8	36.72	3 50.70	0.023	3 25 16.24
Tues.	15	3 25 21.83	9.858	18 42 43.6	35.94	3 50.96	0.001	3 29 12.79
Wed.	16	3 29 18.72	9.883	18 56 56.7	+35.15	3 50.63	0.025	3 33 9.35
Thur.	17	3 33 16.19	9.907	19 10 50.6	34.34	3 49.71	0.050	3 37 5.90
Frid.	18	3 37 14.24	9.931	19 24 25.2	33.52	3 48.22	0.074	3 41 2.46
Sat.	19	3 41 12.87	9.955	19 37 40.0	+32.70	3 46.14	0.098	3 44 59.01
SUN.	20	3 45 12.06	9.978	19 50 35.0	31.87	3 43.51	0.121	3 48 55.57
Mon.	21	3 49 11.81	10.001	20 3 9.6	31.02	3 40.32	0.144	3 52 52.13
Tues.	22	3 53 12.10	10.024	20 15 23.8	+30.16	3 36.58	0.167	3 56 48.68
Wed.	23	3 57 12.94	10.046	20 27 17.3	29.29	3 32.30	0.189	4 0 45.24
Thur.	24	4 1 14.30	10.067	20 38 49.8	28.41	3 27.49	0.211	4 4 41.79
Frid.	25	4 5 16.17	10.088	20 50 1.0	+27.52	3 22.18	0.232	4 8 38.35
Sat.	26	4 9 18.54	10.109	21 0 50.8	26.62	3 16.37	0.252	4 12 34.91
SUN.	27	4 13 21.39	10.129	21 11 18.9	25.71	3 10.07	0.272	4 16 31.46
Mon.	28	4 17 24.71	10.148	21 21 24.9	+24.79	3 3.31	0.291	4 20 28.02
Tues.	29	4 21 28.48	10.166	21 31 8.9	23.86	2 56.10	0.310	4 24 24.58
Wed.	30	4 25 32.70	10.184	21 40 30.4	22.92	2 48.43	0.328	4 28 21.13
Thur.	31	4 29 37.33	10.202	21 49 29.3	21.98	2 40.36	0.345	4 32 17.69
Frid.	32	4 33 42.38	10.218	N.21 58 5.5	+21.03	2 31.86	0.362	4 36 14.24

Note.—The semidiameter for mean noon may be assumed the same as that for apparent noon. The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

Diff. for 1 Hour,
$+9^{s}.8565$.
(Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE.		THE SUN'S Diff. for 1 Hour.	THE SUN'S LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		λ	λ′					
		° ′ ″	′ ″	″	″			h m s
1	121	40 11 46.8	11 43.4	145.53	− 0.06	0.003 4029	+ 44.0	21 22 28.30
2	122	41 9 58.5	9 55.0	145.44	+ 0.07	0.003 5080	43.6	21 18 32.39
3	123	42 8 8.1	8 4.5	145.36	0.20	0.003 6121	43.2	21 14 36.48
4	124	43 6 15.8	6 12.1	145.28	+ 0.31	0.003 7154	+ 42.9	21 10 40.57
5	125	44 4 21.4	4 17.6	145.20	0.41	0.003 8179	42.6	21 6 44.66
6	126	45 2 25.2	2 21.3	145.12	0.48	0.003 9197	42.3	21 2 48.76
7	127	46 0 27.2	0 23.2	145.05	+ 0.52	0.004 0209	+ 42.0	20 58 52.85
8	128	46 58 27.5	58 23.3	144.98	0.53	0.004 1216	41.8	20 54 56.94
9	129	47 56 26.2	56 21.8	144.91	0.51	0.004 2217	41.6	20 51 1.03
10	130	48 54 23.3	54 18.8	144.85	+ 0.46	0.004 3212	+ 41.3	20 47 5.12
11	131	49 52 19.1	52 14.4	144.79	0.38	0.004 4201	41.0	20 43 9.21
12	132	50 50 13.5	50 8.7	144.74	0.27	0.004 5181	40.7	20 39 13.30
13	133	51 48 6.6	48 1.7	144.69	+ 0.14	0.004 6152	+ 40.2	20 35 17.39
14	134	52 45 58.6	45 53.5	144.64	0.00	0.004 7111	39.7	20 31 21.48
15	135	53 43 49.3	43 44.1	144.59	− 0.13	0.004 8057	39.1	20 27 25.57
16	136	54 41 38.9	41 33.6	144.54	− 0.26	0.004 8989	+ 38.5	20 23 29.66
17	137	55 39 27.3	39 21.8	144.49	0.38	0.004 9905	37.8	20 19 33.75
18	138	56 37 14.6	37 9.0	144.44	0.47	0.005 0804	37.1	20 15 37.84
19	139	57 35 0.6	34 54.9	144.39	− 0.55	0.005 1684	+ 36.3	20 11 41.93
20	140	58 32 45.5	32 39.6	144.34	0.61	0.005 2546	35.5	20 7 46.02
21	141	59 30 29.2	30 23.2	144.29	0.64	0.005 3387	34.6	20 3 50.11
22	142	60 28 11.7	28 5.5	144.24	− 0.65	0.005 4208	+ 33.8	19 59 54.20
23	143	61 25 52.9	25 46.6	144.19	0.63	0.005 5008	32.9	19 55 58.29
24	144	62 23 32.9	23 26.4	144.14	0.58	0.005 5787	32.0	19 52 2.38
25	145	63 21 11.6	21 5.0	144.08	− 0.51	0.005 6544	+ 31.1	19 48 6.47
26	146	64 18 49.0	18 42.2	144.03	0.42	0.005 7280	30.2	19 44 10.56
27	147	65 16 25.0	16 18.1	143.97	0.31	0.005 7995	29.3	19 40 14.65
28	148	66 13 59.7	13 52.7	143.92	− 0.20	0.005 8689	+ 28.5	19 36 18.74
29	149	67 11 33.1	11 25.9	143.86	− 0.07	0.005 9362	27.7	19 32 22.83
30	150	68 9 5.1	8 57.7	143.80	+ 0.05	0.006 0017	26.9	19 28 26.92
31	151	69 6 35.7	6 28.2	143.75	0.16	0.006 0653	26.2	19 24 31.01
32	152	70 4 5.0	3 57.3	143.69	+ 0.26	0.006 1272	+ 25.5	19 20 35.10

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ′ are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour,
— $9^s.8296$.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 19.4	15 26.0	56 8.5	+ 1.93	56 32.7	+ 2.08	6 14.1	2.10	7.8
2	15 33.1	15 40.5	56 58.6	2.22	57 25.9	2.32	7 4.5	2.11	8.8
3	15 48.2	15 56.1	57 54.3	2.39	58 23.1	2.42	7 55.2	2.12	9.8
4	16 4.0	16 11.7	58 52.1	+ 2.40	59 20.4	+ 2.32	8 46.4	2.15	10.8
5	16 19.1	16 26.0	59 47.5	2.18	60 12.7	1.99	9 38.6	2.20	11.8
6	16 32.1	16 37.3	60 35.1	1.74	60 54.1	1.43	10 32.3	2.28	12.8
7	16 41.4	16 44.2	61 9.1	+ 1.07	61 19.6	+ 0.67	11 28.2	2.38	13.8
8	16 45.7	16 45.9	61 25.2	+ 0.25	61 25.6	− 0.17	12 26.4	2.47	14.8
9	16 44.6	16 42.0	61 21.0	− 0.58	61 11.5	0.98	13 26.7	2.54	15.8
10	16 38.2	16 33.3	60 57.5	− 1.34	60 39.4	− 1.65	14 28.0	2.55	16.8
11	16 27.4	16 20.8	60 18.0	1.90	59 53.8	2.10	15 28.7	2.49	17.8
12	16 13.7	16 6.2	59 27.7	2.24	59 0.2	2.32	16 27.3	2.37	18.8
13	15 58.6	15 50.9	58 32.1	− 2.35	58 4.0	− 2.33	17 22.6	2.23	19.8
14	15 43.4	15 36.1	57 36.3	2.27	57 9.5	2.18	18 14.3	2.08	20.8
15	15 29.1	15 22.6	56 44.0	2.06	56 20.0	1.93	19 2.7	1.96	21.8
16	15 16.5	15 10.9	55 57.7	− 1.78	55 37.3	− 1.62	19 48.3	1.86	22.8
17	15 5.9	15 1.4	55 18.8	1.46	55 2.3	1.30	20 32.1	1.80	23.8
18	14 57.4	14 54.0	54 47.7	1.13	54 35.1	0.97	21 14.7	1.77	24.8
19	14 51.1	14 48.6	54 24.4	− 0.82	54 15.4	− 0.68	21 57.0	1.77	25.8
20	14 46.6	14 45.1	54 8.2	0.54	54 2.6	0.40	22 39.6	1.79	26.8
21	14 44.0	14 43.3	53 58.6	0.27	53 56.1	− 0.15	23 23.2	1.84	27.8
22	14 43.0	14 43.1	53 55.0	− 0.04	53 55.3	+ 0.08	6	. .	28.8
23	14 43.6	14 44.4	53 56.9	+ 0.19	53 59.9	0.30	0 8.2	1.90	0.2
24	14 45.6	14 47.2	54 4.3	0.41	54 10.0	0.53	0 54.4	1.96	1.2
25	14 49.1	14 51.4	54 17.0	+ 0.65	54 25.5	+ 0.77	1 42.2	2.01	2.2
26	14 54.1	14 57.2	54 35.5	0.89	54 47.0	1.02	2 31.0	2.05	3.2
27	15 0.8	15 4.8	55 0.1	1.15	55 14.8	1.29	3 20.5	2.07	4.2
28	15 9.3	15 14.2	55 31.2	+ 1.43	55 49.2	+ 1.57	4 10.1	2.07	5.2
29	15 19.5	15 25.3	56 8.9	1.70	56 30.1	1.83	4 59.6	2.06	6.2
30	15 31.5	15 38.1	56 52.9	1.94	57 16.9	2.04	5 48.9	2.05	7.2
31	15 45.0	15 52.0	57 42.0	2.12	58 7.9	2.17	6 38.2	2.06	8.2
32	15 59.1	16 6.3	58 34.2	+ 2.19	59 0.4	+ 2.17	7 28.0	2.10	9.2

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 1.					**THURSDAY 3.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	8 35 30.57	2.1885	N.17 44 35.8	5.233	0	10 20 56.36	2.2062	N.11 47 12.9	9.502
1	8 37 41.89	2.1888	17 39 18.9	5.330	1	10 23 8.75	2.2068	11 37 40.5	9.578
2	8 39 53.24	2.1893	17 33 56.2	5.427	2	10 25 21.17	2.2073	11 28 3.5	9.655
3	8 42 4.61	2.1897	17 28 27.7	5.523	3	10 27 33.63	2.2081	11 18 21.9	9.732
4	8 44 16.00	2.1900	17 22 53.4	5.620	4	10 29 46.14	2.2088	11 8 35.7	9.807
5	8 46 27.41	2.1903	17 17 13.3	5.716	5	10 31 58.68	2.2093	10 58 45.1	9.880
6	8 48 38.84	2.1906	17 11 27.5	5.811	6	10 34 11.26	2.2101	10 48 50.1	9.954
7	8 50 50.28	2.1909	17 5 36.0	5.907	7	10 36 23.89	2.2108	10 38 50.6	10.028
8	8 53 1.75	2.1913	16 59 38.7	6.003	8	10 38 36.56	2.2116	10 28 46.8	10.100
9	8 55 13.24	2.1917	16 53 35.7	6.098	9	10 40 49.28	2.2124	10 18 38.6	10.172
10	8 57 24.75	2.1919	16 47 27.0	6.192	10	10 43 2.05	2.2133	10 8 26.2	10.243
11	8 59 36.27	2.1922	16 41 12.7	6.286	11	10 45 14.87	2.2141	9 58 9.5	10.313
12	9 1 47.81	2.1925	16 34 52.7	6.380	12	10 47 27.74	2.2149	9 47 48.7	10.382
13	9 3 59.37	2.1928	16 28 27.1	6.474	13	10 49 40.66	2.2158	9 37 23.7	10.450
14	9 6 10.95	2.1931	16 21 55.8	6.568	14	10 51 53.64	2.2168	9 26 54.7	10.518
15	9 8 22.54	2.1933	16 15 19.0	6.661	15	10 54 6.67	2.2177	9 16 21.6	10.585
16	9 10 34.15	2.1937	16 8 36.5	6.754	16	10 56 19.76	2.2186	9 5 44.5	10.652
17	9 12 45.78	2.1940	16 1 48.5	6.846	17	10 58 32.90	2.2196	8 55 3.4	10.717
18	9 14 57.43	2.1943	15 54 55.0	6.938	18	11 0 46.11	2.2207	8 44 18.5	10.781
19	9 17 9.09	2.1945	15 47 55.9	7.030	19	11 2 59.38	2.2218	8 33 29.7	10.845
20	9 19 20.77	2.1948	15 40 51.4	7.122	20	11 5 12.72	2.2228	8 22 37.1	10.908
21	9 21 32.47	2.1952	15 33 41.3	7.213	21	11 7 26.12	2.2239	8 11 40.7	10.970
22	9 23 44.19	2.1954	15 26 25.8	7.303	22	11 9 39.59	2.2251	8 0 40.7	11.031
23	9 25 55.92	2.1957	N.15 19 4.9	7.394	23	11 11 53.13	2.2263	N. 7 49 37.0	11.092
	WEDNESDAY 2.					**FRIDAY 4.**			
0	9 28 7.67	2.1960	N.15 11 38.5	7.485	0	11 14 6.74	2.2274	N. 7 38 29.7	11.151
1	9 30 19.44	2.1963	15 4 6.7	7.574	1	11 16 20.42	2.2287	7 27 18.9	11.209
2	9 32 31.23	2.1967	14 56 29.6	7.663	2	11 18 34.18	2.2300	7 16 4.6	11.267
3	9 34 43.04	2.1969	14 48 47.2	7.752	3	11 20 48.02	2.2313	7 4 46.9	11.323
4	9 36 54.86	2.1973	14 40 59.4	7.840	4	11 23 1.94	2.2327	6 53 25.8	11.379
5	9 39 6.71	2.1977	14 33 6.4	7.928	5	11 25 15.94	2.2340	6 42 1.4	11.434
6	9 41 18.58	2.1979	14 25 8.1	8.015	6	11 27 30.02	2.2354	6 30 33.7	11.488
7	9 43 30.46	2.1983	14 17 4.6	8.103	7	11 29 44.19	2.2368	6 19 2.9	11.540
8	9 45 42.37	2.1987	14 8 55.8	8.189	8	11 31 58.44	2.2383	6 7 28.9	11.592
9	9 47 54.30	2.1990	14 0 41.9	8.274	9	11 34 12.78	2.2398	5 55 51.9	11.643
10	9 50 6.25	2.1994	13 52 22.9	8.360	10	11 36 27.22	2.2414	5 44 11.8	11.693
11	9 52 18.23	2.1998	13 43 58.7	8.446	11	11 38 41.75	2.2430	5 32 28.8	11.741
12	9 54 30.23	2.2002	13 35 29.4	8.530	12	11 40 56.38	2.2446	5 20 42.9	11.788
13	9 56 42.25	2.2006	13 26 55.1	8.614	13	11 43 11.10	2.2463	5 8 54.2	11.835
14	9 58 54.30	2.2010	13 18 15.7	8.698	14	11 45 25.93	2.2480	4 57 2.7	11.880
15	10 1 6.37	2.2014	13 9 31.4	8.780	15	11 47 40.86	2.2497	4 45 8.6	11.924
16	10 3 18.47	2.2019	13 0 42.1	8.863	16	11 49 55.89	2.2514	4 33 11.8	11.968
17	10 5 30.60	2.2024	12 51 47.8	8.945	17	11 52 11.03	2.2532	4 21 12.5	12.010
18	10 7 42.76	2.2029	12 42 48.7	9.026	18	11 54 26.28	2.2551	4 9 10.6	12.052
19	10 9 54.95	2.2034	12 33 44.7	9.108	19	11 56 41.64	2.2570	3 57 6.3	12.091
20	10 12 7.17	2.2038	12 24 35.8	9.188	20	11 58 57.12	2.2589	3 44 59.7	12.129
21	10 14 19.41	2.2043	12 15 22.2	9.267	21	12 1 12.71	2.2608	3 32 50.8	12.167
22	10 16 31.69	2.2050	12 6 3.8	9.346	22	12 3 28.42	2.2628	3 20 39.6	12.204
23	10 18 44.01	2.2056	11 56 40.7	9.424	23	12 5 44.25	2.2648	3 8 26.3	12.239
24	10 20 56.36	2.2062	N.11 47 12.9	9.502	24	12 8 0.20	2.2669	N. 2 56 10.9	12.273

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
			SATURDAY 5.					MONDAY 7.	
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	12 8 0.20	2.2669	N. 2 56 10.9	12.273	0	13 59 53.73	2.4078	S. 7 6 2.7	12.242
1	12 10 16.28	2.2690	2 43 53.5	12.306	1	14 2 18.31	2.4114	7 18 16.0	12.202
2	12 12 32.48	2.2712	2 31 34.2	12.337	2	14 4 43.10	2.4151	7 30 26.9	12.161
3	12 14 48.82	2.2734	2 19 13.1	12.367	3	14 7 8.12	2.4188	7 42 35.3	12.118
4	12 17 5.29	2.2756	2 6 50.2	12.396	4	14 9 33.36	2.4225	7 54 41.1	12.073
5	12 19 21.89	2.2778	1 54 25.6	12.424	5	14 11 58.82	2.4261	8 6 44.1	12.027
6	12 21 38.63	2.2802	1 41 59.3	12.451	6	14 14 24.49	2.4297	8 18 44.3	11.979
7	12 23 55.51	2.2825	1 29 31.5	12.475	7	14 16 50.38	2.4334	8 30 41.6	11.930
8	12 26 12.53	2.2848	1 17 2.3	12.499	8	14 19 16.50	2.4372	8 42 35.9	11.878
9	12 28 29.69	2.2873	1 4 31.6	12.522	9	14 21 42.84	2.4408	8 54 27.0	11.825
10	12 30 47.00	2.2897	0 51 59.6	12.543	10	14 24 9.40	2.4446	9 6 14.9	11.770
11	12 33 4.45	2.2922	0 39 26.4	12.563	11	14 26 36.19	2.4483	9 17 59.4	11.713
12	12 35 22.06	2.2948	0 26 52.1	12.581	12	14 29 3.20	2.4520	9 29 40.5	11.655
13	12 37 39.82	2.2973	0 14 16.7	12.598	13	14 31 30.43	2.4557	9 41 18.0	11.595
14	12 39 57.73	2.2998	N. 0 1 40.3	12.613	14	14 33 57.88	2.4594	9 52 51.9	11.533
15	12 42 15.80	2.3025	S. 0 10 56.9	12.627	15	14 36 25.56	2.4632	10 4 22.0	11.470
16	12 44 34.03	2.3052	0 23 35.0	12.641	16	14 38 53.46	2.4668	10 15 48.3	11.405
17	12 46 52.42	2.3079	0 36 13.8	12.653	17	14 41 21.58	2.4705	10 27 10.6	11.338
18	12 49 10.98	2.3107	0 48 53.3	12.663	18	14 43 49.92	2.4743	10 38 28.8	11.269
19	12 51 29.70	2.3134	1 1 33.3	12.671	19	14 46 18.49	2.4779	10 49 42.9	11.200
20	12 53 48.59	2.3163	1 14 13.8	12.678	20	14 48 47.27	2.4815	11 0 52.8	11.128
21	12 56 7.65	2.3191	1 26 54.7	12.683	21	14 51 16.27	2.4853	11 11 58.3	11.054
22	12 58 26.88	2.3220	1 39 35.8	12.687	22	14 53 45.50	2.4889	11 22 59.3	10.978
23	13 0 46.29	2.3249	S. 1 52 17.1	12.690	23	14 56 14.94	2.4925	S 11 33 55.7	10.902
			SUNDAY 6.					TUESDAY 8.	
0	13 3 5.87	2.3278	S. 2 4 58.6	12.692	0	14 58 44.60	2.4962	S. 11 44 47.5	10.823
1	13 5 25.63	2.3308	2 17 40.1	12.691	1	15 1 14.48	2.4998	11 55 34.5	10.743
2	13 7 45.57	2.3339	2 30 21.5	12.688	2	15 3 44.57	2.5033	12 6 16.7	10.662
3	13 10 5.70	2.3370	2 43 2.7	12.685	3	15 6 14.88	2.5069	12 16 53.9	10.578
4	13 12 26.01	2.3401	2 55 43.7	12.680	4	15 8 45.40	2.5104	12 27 26.1	10.493
5	13 14 46.51	2.3432	3 8 24.3	12.673	5	15 11 16.13	2.5139	12 37 53.1	10.407
6	13 17 7.19	2.3464	3 21 4.5	12.666	6	15 13 47.07	2.5174	12 48 14.9	10.318
7	13 19 28.07	2.3496	3 33 44.2	12.656	7	15 16 18.22	2.5208	12 58 31.3	10.228
8	13 21 49.14	2.3528	3 46 23.2	12.644	8	15 18 49.57	2.5242	13 8 42.3	10.138
9	13 24 10.40	2.3560	3 59 1.5	12.632	9	15 21 21.13	2.5277	13 18 47.8	10.044
10	13 26 31.86	2.3593	4 11 39.0	12.618	10	15 23 52.89	2.5310	13 28 47.6	9.950
11	13 28 53.52	2.3626	4 24 15.6	12.601	11	15 26 24.85	2.5343	13 38 41.8	9.854
12	13 31 15.37	2.3659	4 36 51.1	12.583	12	15 28 57.01	2.5377	13 48 30.1	9.756
13	13 33 37.43	2.3693	4 49 25.6	12.564	13	15 31 29.37	2.5409	13 58 12.5	9.658
14	13 35 59.69	2.3727	5 1 58.8	12.542	14	15 34 1.92	2.5441	14 7 49.0	9.557
15	13 38 22.15	2.3761	5 14 30.6	12.519	15	15 36 34.66	2.5473	14 17 19.3	9.454
16	13 40 44.82	2.3795	5 27 1.1	12.496	16	15 39 7.59	2.5503	14 26 43.5	9.352
17	13 43 7.69	2.3829	5 39 30.1	12.470	17	15 41 40.70	2.5533	14 36 1.5	9.247
18	13 45 30.77	2.3865	5 51 57.5	12.443	18	15 44 13.99	2.5563	14 45 13.1	9.139
19	13 47 54.07	2.3901	6 4 23.2	12.413	19	15 46 47.46	2.5593	14 54 18.2	9.032
20	13 50 17.58	2.3935	6 16 47.1	12.383	20	15 49 21.11	2.5623	15 3 16.9	8.923
21	13 52 41.29	2.3970	6 29 9.1	12.350	21	15 51 54.93	2.5651	15 12 9.0	8.812
22	13 55 5.22	2.4007	6 41 29.1	12.316	22	15 54 28.92	2.5679	15 20 54.4	8.701
23	13 57 29.37	2.4043	6 53 47.0	12.280	23	15 57 3.08	2.5707	15 29 33.1	8.588
24	13 59 53.73	2.4078	S. 7 6 2.7	12.242	24	15 59 37.40	2.5733	S. 15 38 5.0	8.474

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 9.					FRIDAY 11.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	15 59 37.40	2.5733	S. 15 38 5.0	8.474	0	18 4 40.99	2.6009	S. 19 54 41.6	1.987
1	16 2 11.88	2.5759	15 46 30.0	8.358	1	18 7 16.99	2.5991	19 56 36.5	1.843
2	16 4 46.51	2.5784	15 54 48.0	8.241	2	18 9 52.88	2.5971	19 58 22.8	1.700
3	16 7 21.29	2.5809	16 2 58.9	8.123	3	18 12 28.64	2.5949	20 0 0.5	1.557
4	16 9 56.22	2.5833	16 11 2.7	8.003	4	18 15 4.27	2.5928	20 1 29.6	1.414
5	16 12 31.29	2.5857	16 18 59.3	7.883	5	18 17 39.77	2.5905	20 2 50.2	1.272
6	16 15 6.50	2.5879	16 26 48.6	7.761	6	18 20 15.13	2.5881	20 4 2.2	1.128
7	16 17 41.84	2.5901	16 34 30.6	7.638	7	18 22 50.34	2.5855	20 5 5.6	0.986
8	16 20 17.31	2.5923	16 42 5.2	7.514	8	18 25 25.39	2.5829	20 6 0.5	0.845
9	16 22 52.91	2.5943	16 49 32.3	7.389	9	18 28 0.29	2.5803	20 6 47.0	0.703
10	16 25 28.63	2.5963	16 56 51.9	7.263	10	18 30 35.03	2.5775	20 7 24.9	0.562
11	16 28 4.46	2.5981	17 4 3.9	7.136	11	18 33 9.59	2.5745	20 7 54.4	0.422
12	16 30 40.40	2.5999	17 11 8.2	7.008	12	18 35 43.97	2.5715	20 8 15.5	0.282
13	16 33 16.45	2.6017	17 18 4.8	6.879	13	18 38 18.17	2.5685	20 8 28.2	0.142
14	16 35 52.60	2.6033	17 24 53.7	6.749	14	18 40 52.19	2.5653	20 8 32.5	0.002
15	16 38 28.84	2.6048	17 31 34.7	6.618	15	18 43 26.01	2.5620	20 8 28.4	0.137
16	16 41 5.18	2.6063	17 38 7.9	6.487	16	18 45 59.63	2.5587	20 8 16.1	0.274
17	16 43 41.60	2.6077	17 44 33.1	6.354	17	18 48 33.05	2.5553	20 7 55.5	0.412
18	16 46 18.10	2.6089	17 50 50.4	6.221	18	18 51 6.26	2.5517	20 7 26.7	0.549
19	16 48 54.67	2.6101	17 56 59.6	6.086	19	18 53 39.25	2.5480	20 6 49.6	0.686
20	16 51 31.31	2.6112	18 3 0.7	5.951	20	18 56 12.02	2.5443	20 6 4.4	0.822
21	16 54 8.01	2.6122	18 8 53.7	5.815	21	18 58 44.57	2.5406	20 5 11.0	0.957
22	16 56 44.77	2.6132	18 14 38.5	5.679	22	19 1 16.89	2.5367	20 4 9.6	1.090
23	16 59 21.59	2.6140	S. 18 20 15.2	5.541	23	19 3 48.97	2.5327	S. 20 3 0.2	1.224
	THURSDAY 10.					SATURDAY 12.			
0	17 1 58.45	2.6147	S. 18 25 43.6	5.403	0	19 6 20.81	2.5287	S. 20 1 42.7	1.358
1	17 4 35.35	2.6153	18 31 3.7	5.266	1	19 8 52.41	2.5246	20 0 17.3	1.489
2	17 7 12.29	2.6158	18 36 15.5	5.127	2	19 11 23.76	2.5203	19 58 44.0	1.621
3	17 9 49.25	2.6163	18 41 18.9	4.988	3	19 13 54.85	2.5160	19 57 2.8	1.752
4	17 12 26.24	2.6166	18 46 14.0	4.848	4	19 16 25.68	2.5117	19 55 13.8	1.882
5	17 15 3.24	2.6168	18 51 0.6	4.707	5	19 18 56.25	2.5073	19 53 17.0	2.011
6	17 17 40.25	2.6169	18 55 38.8	4.567	6	19 21 26.56	2.5029	19 51 12.5	2.139
7	17 20 17.27	2.6169	19 0 8.6	4.425	7	19 23 56.60	2.4983	19 49 0.3	2.267
8	17 22 54.28	2.6168	19 4 29.8	4.283	8	19 26 26.36	2.4937	19 46 40.5	2.393
9	17 25 31.28	2.6166	19 8 42.5	4.141	9	19 28 55.84	2.4890	19 44 13.2	2.518
10	17 28 8.27	2.6163	19 12 46.7	3.998	10	19 31 25.04	2.4843	19 41 38.3	2.643
11	17 30 45.24	2.6159	19 16 42.3	3.856	11	19 33 53.96	2.4795	19 38 56.0	2.767
12	17 33 22.18	2.6154	19 20 29.4	3.713	12	19 36 22.58	2.4746	19 36 6.3	2.890
13	17 35 59.09	2.6148	19 24 7.9	3.569	13	19 38 50.91	2.4698	19 33 9.2	3.013
14	17 38 35.95	2.6140	19 27 37.7	3.425	14	19 41 18.95	2.4648	19 30 4.8	3.133
15	17 41 12.77	2.6132	19 30 58.9	3.282	15	19 43 46.69	2.4598	19 26 53.2	3.253
16	17 43 49.54	2.6123	19 34 11.5	3.138	16	19 46 14.12	2.4547	19 23 34.4	3.373
17	17 46 26.24	2.6112	19 37 15.5	2.995	17	19 48 41.25	2.4496	19 20 8.5	3.490
18	17 49 2.88	2.6101	19 40 10.9	2.851	18	19 51 8.07	2.4445	19 16 35.6	3.608
19	17 51 39.45	2.6088	19 42 57.6	2.708	19	19 53 34.59	2.4393	19 12 55.6	3.724
20	17 54 15.94	2.6075	19 45 35.7	2.563	20	19 56 0.79	2.4340	19 9 8.7	3.839
21	17 56 52.35	2.6060	19 48 5.1	2.418	21	19 58 26.67	2.4287	19 5 14.9	3.953
22	17 59 28.66	2.6044	19 50 25.9	2.275	22	20 0 52.23	2.4234	19 1 14.3	4.067
23	18 2 4.88	2.6028	19 52 38.1	2.131	23	20 3 17.48	2.4181	18 57 6.9	4.178
24	18 4 40.99	2.6009	S. 19 54 41.6	1.987	24	20 5 42.40	2.4126	S. 18 52 52.9	4.289

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 13.					TUESDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	20 5 42.40	2.4126	S. 18 52 52.9	4.289	0	21 55 3.67	2.1464	S. 13 39 38.7	8.348
1	20 8 6.99	2.4072	18 48 32.2	4.399	1	21 57 12.30	2.1413	13 31 16.1	8.406
2	20 10 31.26	2.4018	18 44 5.0	4.508	2	21 59 20.63	2.1363	13 22 50.0	8.463
3	20 12 55.20	2.3963	18 39 31.3	4.616	3	22 1 28.66	2.1313	13 14 20.5	8.519
4	20 15 18.81	2.3908	18 34 51.1	4.723	4	22 3 36.38	2.1263	13 5 47.7	8.575
5	20 17 42.09	2.3853	18 30 4.5	4.829	5	22 5 43.81	2.1213	12 57 11.5	8.631
6	20 20 5.04	2.3797	18 25 11.6	4.933	6	22 7 50.94	2.1164	12 48 32.0	8.684
7	20 22 27.65	2.3740	18 20 12.5	5.037	7	22 9 57.78	2.1115	12 39 49.4	8.737
8	20 24 49.92	2.3684	18 15 7.2	5.139	8	22 12 4.32	2.1066	12 31 3.6	8.789
9	20 27 11.86	2.3628	18 9 55.8	5.241	9	22 14 10.57	2.1018	12 22 14.7	8.840
10	20 29 33.46	2.3572	18 4 38.3	5.342	10	22 16 16.54	2.0972	12 13 22.8	8.889
11	20 31 54.72	2.3515	17 59 14.8	5.441	11	22 18 22.23	2.0924	12 4 28.0	8.938
12	20 34 15.64	2.3458	17 53 45.4	5.538	12	22 20 27.63	2.0877	11 55 30.2	8.987
13	20 36 36.22	2.3402	17 48 10.2	5.636	13	22 22 32.75	2.0831	11 46 29.6	9.034
14	20 38 56.46	2.3345	17 42 29.1	5.732	14	22 24 37.60	2.0786	11 37 26.1	9.081
15	20 41 16.36	2.3288	17 36 42.4	5.826	15	22 26 42.18	2.0740	11 28 19.9	9.126
16	20 43 35.92	2.3231	17 30 50.0	5.920	16	22 28 46.48	2.0695	11 19 11.0	9.170
17	20 45 55.13	2.3173	17 24 52.0	6.013	17	22 30 50.52	2.0652	11 9 59.5	9.213
18	20 48 14.00	2.3117	17 18 48.5	6.104	18	22 32 54.30	2.0608	11 0 45.4	9.257
19	20 50 32.53	2.3060	17 12 39.5	6.194	19	22 34 57.81	2.0563	10 51 28.7	9.299
20	20 52 50.72	2.3003	17 6 25.2	6.283	20	22 37 1.06	2.0520	10 42 9.5	9.340
21	20 55 8.57	2.2946	17 0 5.5	6.372	21	22 39 4.05	2.0478	10 32 47.9	9.379
22	20 57 26.07	2.2888	16 53 40.5	6.459	22	22 41 6.79	2.0436	10 23 24.0	9.418
23	20 59 43.23	2.2832	S. 16 47 10.4	6.545	23	22 43 9.28	2.0395	S. 10 13 57.7	9.458
	MONDAY 14.					WEDNESDAY 16.			
0	21 2 0.05	2.2775	S. 16 40 35.1	6.630	0	22 45 11.53	2.0354	S. 10 4 29.1	9.495
1	21 4 16.53	2.2718	16 33 54.8	6.713	1	22 47 13.53	2.0313	9 54 58.3	9.532
2	21 6 32.67	2.2662	16 27 9.5	6.797	2	22 49 15.28	2.0273	9 45 25.3	9.568
3	21 8 48.47	2.2604	16 20 19.2	6.878	3	22 51 16.80	2.0233	9 35 50.2	9.602
4	21 11 3.92	2.2548	16 13 24.1	6.958	4	22 53 18.08	2.0194	9 26 13.1	9.636
5	21 13 19.04	2.2492	16 6 24.2	7.038	5	22 55 19.13	2.0156	9 16 33.9	9.670
6	21 15 33.82	2.2436	15 59 19.6	7.116	6	22 57 19.95	2.0118	9 6 52.7	9.703
7	21 17 48.27	2.2380	15 52 10.3	7.193	7	22 59 20.55	2.0081	8 57 9.6	9.734
8	21 20 2.38	2.2324	15 44 56.4	7.270	8	23 1 20.92	2.0043	8 47 24.6	9.765
9	21 22 16.16	2.2269	15 37 37.9	7.346	9	23 3 21.07	2.0007	8 37 37.8	9.795
10	21 24 29.61	2.2213	15 30 14.9	7.420	10	23 5 21.00	1.9970	8 27 49.2	9.824
11	21 26 42.72	2.2158	15 22 47.5	7.493	11	23 7 20.71	1.9935	8 17 58.9	9.853
12	21 28 55.50	2.2103	15 15 15.8	7.564	12	23 9 20.22	1.9901	8 8 6.9	9.881
13	21 31 7.95	2.2048	15 7 39.8	7.635	13	23 11 19.52	1.9866	7 58 13.2	9.908
14	21 33 20.08	2.1994	14 59 59.6	7.705	14	23 13 18.61	1.9832	7 48 18.0	9.933
15	21 35 31.88	2.1939	14 52 15.2	7.774	15	23 15 17.50	1.9798	7 38 21.2	9.959
16	21 37 43.35	2.1885	14 44 26.7	7.842	16	23 17 16.19	1.9766	7 28 22.9	9.984
17	21 39 54.50	2.1832	14 36 34.2	7.908	17	23 19 14.69	1.9734	7 18 23.1	10.008
18	21 42 5.33	2.1778	14 28 37.7	7.974	18	23 21 13.00	1.9702	7 8 21.9	10.031
19	21 44 15.84	2.1725	14 20 37.3	8.038	19	23 23 11.11	1.9670	6 58 19.4	10.053
20	21 46 26.03	2.1673	14 12 33.1	8.103	20	23 25 9.04	1.9640	6 48 15.5	10.075
21	21 48 35.91	2.1621	14 4 25.0	8.166	21	23 27 6.79	1.9609	6 38 10.4	10.096
22	21 50 45.48	2.1568	13 56 13.2	8.227	22	23 29 4.35	1.9579	6 28 4.0	10.117
23	21 52 54.73	2.1516	13 47 57.8	8.288	23	23 31 1.74	1.9551	6 17 56.4	10.136
24	21 55 3.67	2.1464	S. 13 39 38.7	8.348	24	23 32 58.96	1.9523	S. 6 7 47.7	10.154

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.				Diff. for 1 Minute.
THURSDAY 17.									
	h	m	s	s		°	′	″	″
0	23	32	58.96	1.9523	S.	6	7	47.7	10.154
1	23	34	56.01	1.9494		5	57	37.9	10.173
2	23	36	52.89	1.9466		5	47	27.0	10.190
3	23	38	49.60	1.9439		5	37	15.1	10.206
4	23	40	46.16	1.9413		5	27	2.3	10.222
5	23	42	42.56	1.9387		5	16	48.5	10.238
6	23	44	38.80	1.9362		5	6	33.8	10.253
7	23	46	34.90	1.9338		4	56	18.2	10.266
8	23	48	30.85	1.9313		4	46	1.9	10.278
9	23	50	26.65	1.9288		4	35	44.8	10.291
10	23	52	22.31	1.9265		4	25	27.0	10.303
11	23	54	17.83	1.9243		4	15	8.5	10.314
12	23	56	13.22	1.9221		4	4	49.3	10.325
13	23	58	8.48	1.9199		3	54	29.5	10.334
14	0	0	3.61	1.9178		3	44	9.2	10.343
15	0	1	58.61	1.9157		3	33	48.4	10.351
16	0	3	53.49	1.9137		3	23	27.1	10.359
17	0	5	48.25	1.9118		3	13	5.3	10.367
18	0	7	42.90	1.9098		3	2	43.1	10.373
19	0	9	37.43	1.9079		2	52	20.6	10.378
20	0	11	31.85	1.9062		2	41	57.7	10.384
21	0	13	26.17	1.9045		2	31	34.5	10.388
22	0	15	20.39	1.9028		2	21	11.1	10.392
23	0	17	14.50	1.9011	S.	2	10	47.5	10.395
FRIDAY 18.									
0	0	19	8.52	1.8996	S.	2	0	23.7	10.398
1	0	21	2.45	1.8980		1	49	59.8	10.399
2	0	22	56.28	1.8965		1	39	35.8	10.401
3	0	24	50.03	1.8951		1	29	11.7	10.401
4	0	26	43.69	1.8937		1	18	47.7	10.401
5	0	28	37.27	1.8923		1	8	23.6	10.401
6	0	30	30.77	1.8911		0	57	59.6	10.399
7	0	32	24.20	1.8898		0	47	35.7	10.398
8	0	34	17.55	1.8887		0	37	11.9	10.395
9	0	36	10.84	1.8876		0	26	48.3	10.392
10	0	38	4.06	1.8864		0	16	24.9	10.388
11	0	39	57.21	1.8854	S.	0	6	1.7	10.384
12	0	41	50.31	1.8845	N.	0	4	21.2	10.378
13	0	43	43.35	1.8835		0	14	43.7	10.373
14	0	45	36.33	1.8826		0	25	5.9	10.367
15	0	47	29.26	1.8818		0	35	27.7	10.360
16	0	49	22.15	1.8811		0	45	49.1	10.353
17	0	51	14.99	1.8803		0	56	10.0	10.344
18	0	53	7.78	1.8796		1	6	30.4	10.336
19	0	55	0.54	1.8790		1	16	50.3	10.327
20	0	56	53.26	1.8783		1	27	9.6	10.317
21	0	58	45.94	1.8778		1	37	28.3	10.306
22	1	0	38.60	1.8774		1	47	46.3	10.295
23	1	2	31.23	1.8769		1	58	3.7	10.283
24	1	4	23.83	1.8765	N.	2	8	20.3	10.271

Hour.	Right Ascension.			Diff. for 1 Minute.	Declination.				Diff. for 1 Minute.
SATURDAY 19.									
	h	m	s	s		°	′	″	″
0	1	4	23.83	1.8765	N.	2	8	20.3	10.271
1	1	6	16.41	1.8762		2	18	36.2	10.258
2	1	8	8.97	1.8758		2	28	51.3	10.245
3	1	10	1.51	1.8756		2	39	5.6	10.231
4	1	11	54.04	1.8754		2	49	19.0	10.216
5	1	13	46.56	1.8753		2	59	31.5	10.200
6	1	15	39.07	1.8752		3	9	43.0	10.184
7	1	17	31.58	1.8751		3	19	53.6	10.168
8	1	19	24.08	1.8750		3	30	3.2	10.152
9	1	21	16.58	1.8750		3	40	11.8	10.134
10	1	23	9.08	1.8751		3	50	19.3	10.115
11	1	25	1.59	1.8753		4	0	25.6	10.096
12	1	26	54.11	1.8754		4	10	30.8	10.077
13	1	28	46.64	1.8756		4	20	34.8	10.057
14	1	30	39.18	1.8758		4	30	37.6	10.037
15	1	32	31.73	1.8760		4	40	39.2	10.016
16	1	34	24.30	1.8763		4	50	39.5	9.993
17	1	36	16.89	1.8768		5	0	38.4	9.971
18	1	38	9.51	1.8773		5	10	36.0	9.948
19	1	40	2.16	1.8777		5	20	32.2	9.924
20	1	41	54.83	1.8781		5	30	26.9	9.900
21	1	43	47.53	1.8786		5	40	20.2	9.876
22	1	45	40.26	1.8792		5	50	12.0	9.850
23	1	47	33.03	1.8798	N.	6	0	2.2	9.823
SUNDAY 20.									
0	1	49	25.84	1.8805	N.	6	9	50.8	9.797
1	1	51	18.69	1.8812		6	19	37.8	9.770
2	1	53	11.58	1.8819		6	29	23.2	9.743
3	1	55	4.52	1.8827		6	39	7.0	9.715
4	1	56	57.50	1.8835		6	48	49.0	9.685
5	1	58	50.54	1.8844		6	58	29.2	9.656
6	2	0	43.63	1.8853		7	8	7.7	9.626
7	2	2	36.77	1.8862		7	17	44.3	9.595
8	2	4	29.97	1.8871		7	27	19.1	9.563
9	2	6	23.22	1.8881		7	36	52.0	9.532
10	2	8	16.54	1.8892		7	46	23.0	9.500
11	2	10	9.92	1.8903		7	55	52.0	9.467
12	2	12	3.37	1.8913		8	5	19.0	9.433
13	2	13	56.88	1.8925		8	14	44.0	9.399
14	2	15	50.47	1.8938		8	24	6.9	9.364
15	2	17	44.13	1.8949		8	33	27.7	9.328
16	2	19	37.86	1.8962		8	42	46.3	9.293
17	2	21	31.67	1.8974		8	52	2.8	9.257
18	2	23	25.55	1.8987		9	1	17.1	9.219
19	2	25	19.51	1.9001		9	10	29.1	9.181
20	2	27	13.56	1.9015		9	19	38.8	9.143
21	2	29	7.69	1.9029		9	28	46.2	9.103
22	2	31	1.91	1.9043		9	37	51.2	9.064
23	2	32	56.21	1.9058		9	46	53.9	9.024
24	2	34	50.60	1.9073	N.	9	55	54.1	8.983

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 21.					WEDNESDAY 23.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	2 34 50.60	1.9073	N. 9 55 54.1	8.983	0	4 8 35.77	2.0058	N.16 8 49.6	6.329
1	2 36 45.08	1.9088	10 4 51.9	8.942	1	4 10 36.19	2.0082	16 15 7.3	6.260
2	2 38 39.66	1.9104	10 13 47.1	8.899	2	4 12 36.75	2.0105	16 21 20.8	6.190
3	2 40 34.33	1.9120	10 22 39.8	8.857	3	4 14 37.45	2.0129	16 27 30.1	6.119
4	2 42 29.10	1.9137	10 31 30.0	8.814	4	4 16 38.30	2.0153	16 33 35.1	6.048
5	2 44 23.97	1.9153	10 40 17.5	8.770	5	4 18 39.29	2.0177	16 39 35.9	5.977
6	2 46 18.94	1.9170	10 49 2.4	8.726	6	4 20 40.42	2.0200	16 45 32.3	5.904
7	2 48 14.01	1.9187	10 57 44.6	8.681	7	4 22 41.69	2.0224	16 51 24.4	5.832
8	2 50 9.18	1.9204	11 6 24.1	8.636	8	4 24 43.11	2.0248	16 57 12.1	5.758
9	2 52 4.46	1.9222	11 15 0.9	8.589	9	4 26 44.67	2.0272	17 2 55.4	5.684
10	2 53 59.85	1.9240	11 23 34.8	8.542	10	4 28 46.37	2.0295	17 8 34.2	5.610
11	2 55 55.34	1.9258	11 32 5.9	8.495	11	4 30 48.21	2.0318	17 14 8.6	5.535
12	2 57 50.94	1.9276	11 40 34.2	8.448	12	4 32 50.19	2.0342	17 19 38.4	5.459
13	2 59 46.65	1.9295	11 48 59.6	8.398	13	4 34 52.31	2.0366	17 25 3.7	5.383
14	3 1 42.48	1.9314	11 57 22.0	8.349	14	4 36 54.58	2.0389	17 30 24.4	5.308
15	3 3 38.42	1.9333	12 5 41.5	8.300	15	4 38 56.98	2.0412	17 35 40.6	5.231
16	3 5 34.47	1.9352	12 13 58.0	8.250	16	4 40 59.52	2.0436	17 40 52.1	5.153
17	3 7 30.64	1.9373	12 22 11.5	8.199	17	4 43 2.21	2.0459	17 45 58.9	5.074
18	3 9 26.94	1.9393	12 30 21.9	8.148	18	4 45 5.03	2.0482	17 51 1.0	4.996
19	3 11 23.35	1.9412	12 38 29.2	8.095	19	4 47 7.99	2.0505	17 55 58.4	4.918
20	3 13 19.88	1.9432	12 46 33.3	8.043	20	4 49 11.09	2.0528	18 0 51.1	4.838
21	3 15 16.53	1.9452	12 54 34.3	7.989	21	4 51 14.33	2.0551	18 5 39.0	4.758
22	3 17 13.30	1.9473	13 2 32.0	7.935	22	4 53 17.70	2.0573	18 10 22.1	4.678
23	3 19 10.20	1.9494	N.13 10 26.5	7.881	23	4 55 21.21	2.0597	N.18 15 0.3	4.597
	TUESDAY 22.					THURSDAY 24.			
0	3 21 7.23	1.9515	N.13 18 17.7	7.826	0	4 57 24.86	2.0619	N.18 19 33.7	4.516
1	3 23 4.38	1.9536	13 26 5.6	7.770	1	4 59 28.64	2.0641	18 24 2.2	4.433
2	3 25 1.66	1.9558	13 33 50.1	7.714	2	5 1 32.55	2.0663	18 28 25.7	4.351
3	3 26 59.07	1.9579	13 41 31.3	7.658	3	5 3 36.60	2.0686	18 32 44.3	4.268
4	3 28 56.61	1.9601	13 49 9.0	7.599	4	5 5 40.78	2.0708	18 36 57.9	4.185
5	3 30 54.28	1.9623	13 56 43.2	7.542	5	5 7 45.10	2.0730	18 41 6.5	4.102
6	3 32 52.08	1.9644	14 4 14.0	7.483	6	5 9 49.54	2.0751	18 45 10.1	4.018
7	3 34 50.01	1.9667	14 11 41.2	7.424	7	5 11 54.11	2.0773	18 49 8.6	3.938
8	3 36 48.08	1.9689	14 19 4.9	7.365	8	5 13 58.81	2.0794	18 53 2.0	3.848
9	3 38 46.28	1.9711	14 26 25.0	7.304	9	5 16 3.64	2.0815	18 56 50.3	3.762
10	3 40 44.61	1.9733	14 33 41.4	7.243	10	5 18 8.59	2.0836	19 0 33.4	3.676
11	3 42 43.08	1.9757	14 40 54.1	7.181	11	5 20 13.67	2.0857	19 4 11.4	3.590
12	3 44 41.69	1.9779	14 48 3.1	7.119	12	5 22 18.87	2.0878	19 7 44.2	3.503
13	3 46 40.43	1.9802	14 55 8.4	7.057	13	5 24 24.20	2.0898	19 11 11.8	3.416
14	3 48 39.31	1.9825	15 2 9.9	6.993	14	5 26 29.65	2.0918	19 14 34.1	3.328
15	3 50 38.33	1.9848	15 9 7.6	6.929	15	5 28 35.21	2.0938	19 17 51.2	3.241
16	3 52 37.49	1.9871	15 16 1.4	6.865	16	5 30 40.90	2.0958	19 21 3.0	3.153
17	3 54 36.78	1.9893	15 22 51.4	6.801	17	5 32 46.71	2.0978	19 24 9.5	3.063
18	3 56 36.21	1.9918	15 29 37.5	6.735	18	5 34 52.63	2.0997	19 27 10.6	2.973
19	3 58 35.79	1.9942	15 36 19.6	6.668	19	5 36 58.67	2.1016	19 30 6.3	2.884
20	4 0 35.51	1.9964	15 42 57.7	6.602	20	5 39 4.82	2.1034	19 32 56.7	2.795
21	4 2 35.36	1.9987	15 49 31.8	6.534	21	5 41 11.08	2.1053	19 35 41.7	2.705
22	4 4 35.35	2.0011	15 56 1.8	6.467	22	5 43 17.46	2.1073	19 38 21.3	2.614
23	4 6 35.49	2.0035	16 2 27.8	6.398	23	5 45 23.95	2.1090	19 40 55.4	2.523
24	4 8 35.77	2.0058	N.16 8 49.6	6.329	24	5 47 30.54	2.1108	N.19 43 24.0	2.432

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 25.					SUNDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	5 47 30.54	2.1108	N.19 43 24.0	2.432	0	7 30 20.42	2.1622	N.19 50 14.5	2.206
1	5 49 37.24	2.1125	19 45 47.2	2.340	1	7 32 30.16	2.1624	19 47 59.2	2.304
2	5 51 44.04	2.1143	19 48 4.8	2.248	2	7 34 39.91	2.1627	19 45 38.0	2.403
3	5 53 50.95	2.1160	19 50 16.9	2.156	3	7 36 49.68	2.1629	19 43 10.9	2.502
4	5 55 57.96	2.1177	19 52 23.5	2.063	4	7 38 59.46	2.1632	19 40 37.8	2.600
5	5 58 5.07	2.1193	19 54 24.5	1.971	5	7 41 9.26	2.1634	19 37 58.9	2.698
6	6 0 12.28	2.1210	19 56 20.0	1.878	6	7 43 19.07	2.1637	19 35 14.1	2.797
7	6 2 19.59	2.1226	19 58 9.8	1.783	7	7 45 28.90	2.1638	19 32 23.3	2.896
8	6 4 26.99	2.1242	19 59 54.0	1.690	8	7 47 38.73	2.1639	19 29 26.6	2.993
9	6 6 34.49	2.1258	20 1 32.6	1.596	9	7 49 48.57	2.1640	19 26 24.1	3.091
10	6 8 42.08	2.1273	20 3 5.5	1.502	10	7 51 58.41	2.1641	19 23 15.7	3.189
11	6 10 49.76	2.1287	20 4 32.8	1.408	11	7 54 8.26	2.1642	19 20 1.4	3.288
12	6 12 57.52	2.1301	20 5 54.4	1.313	12	7 56 18.11	2.1642	19 16 41.2	3.385
13	6 15 5.37	2.1316	20 7 10.3	1.218	13	7 58 27.96	2.1643	19 13 15.2	3.483
14	6 17 13.31	2.1330	20 8 20.5	1.122	14	8 0 37.82	2.1643	19 9 43.3	3.580
15	6 19 21.33	2.1344	20 9 24.9	1.026	15	8 2 47.67	2.1642	19 6 5.6	3.677
16	6 21 29.44	2.1358	20 10 23.6	0.931	16	8 4 57.52	2.1642	19 2 22.1	3.774
17	6 23 37.62	2.1370	20 11 16.6	0.835	17	8 7 7.37	2.1641	18 58 32.7	3.872
18	6 25 45.88	2.1383	20 12 3.8	0.738	18	8 9 17.21	2.1640	18 54 37.5	3.968
19	6 27 54.21	2.1395	20 12 45.2	0.642	19	8 11 27.05	2.1639	18 50 36.5	4.065
20	6 30 2.62	2.1408	20 13 20.8	0.546	20	8 13 36.88	2.1638	18 46 29.7	4.161
21	6 32 11.10	2.1419	20 13 50.7	0.449	21	8 15 46.70	2.1637	18 42 17.2	4.258
22	6 34 19.65	2.1431	20 14 14.7	0.352	22	8 17 56.52	2.1635	18 37 58.8	4.354
23	6 36 28.27	2.1443	N.20 14 32.9	0.254	23	8 20 6.32	2.1633	N.18 33 34.7	4.449
	SATURDAY 26.					MONDAY 28.			
0	6 38 36.96	2.1453	N.20 14 45.2	0.157	0	8 22 16.11	2.1631	N.18 29 4.9	4.544
1	6 40 45.71	2.1463	20 14 51.7	0.060	1	8 24 25.89	2.1628	18 24 29.4	4.640
2	6 42 54.52	2.1474	20 14 52.4	0.038	2	8 26 35.65	2.1626	18 19 48.1	4.735
3	6 45 3.40	2.1484	20 14 47.2	0.136	3	8 28 45.40	2.1624	18 15 1.2	4.829
4	6 47 12.33	2.1493	20 14 36.1	0.233	4	8 30 55.14	2.1622	18 10 8.6	4.924
5	6 49 21.32	2.1503	20 14 19.2	0.331	5	8 33 4.86	2.1618	18 5 10.3	5.019
6	6 51 30.36	2.1511	20 13 56.4	0.429	6	8 35 14.56	2.1615	18 0 6.3	5.113
7	6 53 39.45	2.1520	20 13 27.7	0.528	7	8 37 24.24	2.1613	17 54 56.8	5.206
8	6 55 48.60	2.1529	20 12 53.1	0.626	8	8 39 33.91	2.1610	17 49 41.6	5.300
9	6 57 57.80	2.1538	20 12 12.6	0.724	9	8 41 43.56	2.1607	17 44 20.8	5.393
10	7 0 7.05	2.1545	20 11 26.2	0.823	10	8 43 53.19	2.1602	17 38 54.4	5.487
11	7 2 16.34	2.1552	20 10 33.9	0.922	11	8 46 2.79	2.1599	17 33 22.4	5.579
12	7 4 25.67	2.1559	20 9 35.6	1.020	12	8 48 12.38	2.1597	17 27 44.9	5.671
13	7 6 35.05	2.1567	20 8 31.5	1.118	13	8 50 21.95	2.1593	17 22 1.9	5.763
14	7 8 44.47	2.1573	20 7 21.4	1.218	14	8 52 31.49	2.1588	17 16 13.3	5.855
15	7 10 53.92	2.1578	20 6 5.4	1.316	15	8 54 41.01	2.1585	17 10 19.3	5.946
16	7 13 3.41	2.1584	20 4 43.5	1.415	16	8 56 50.51	2.1582	17 4 19.8	6.038
17	7 15 12.93	2.1590	20 3 15.6	1.514	17	8 58 59.99	2.1578	16 58 14.8	6.128
18	7 17 22.49	2.1596	20 1 41.8	1.613	18	9 1 9.44	2.1573	16 52 4.4	6.218
19	7 19 32.08	2.1601	20 0 2.1	1.711	19	9 3 18.87	2.1569	16 45 48.7	6.308
20	7 21 41.70	2.1605	19 58 16.5	1.810	20	9 5 28.27	2.1565	16 39 27.5	6.398
21	7 23 51.34	2.1609	19 56 24.9	1.909	21	9 7 37.65	2.1562	16 33 0.9	6.488
22	7 26 1.01	2.1613	19 54 27.4	2.008	22	9 9 47.01	2.1558	16 26 29.0	6.576
23	7 28 10.70	2.1618	19 52 23.9	2.108	23	9 11 56.35	2.1554	16 19 51.8	6.664
24	7 30 20.42	2.1622	N.19 50 14.5	2.206	24	9 14 5.66	2.1550	N.16 13 9.3	6.753

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

TUESDAY 29.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	9 14 5.66	2.1550	N.16 13 9.3	6.753
1	9 16 14.95	2.1547	16 6 21.5	6.840
2	9 18 24.22	2.1543	15 59 28.5	6.927
3	9 20 33.46	2.1538	15 52 30.3	7.013
4	9 22 42.68	2.1534	15 45 26.9	7.100
5	9 24 51.87	2.1530	15 38 18.3	7.186
6	9 27 1.04	2.1527	15 31 4.6	7.272
7	9 29 10.19	2.1523	15 23 45.7	7.358
8	9 31 19.32	2.1520	15 16 21.7	7.442
9	9 33 28.43	2.1517	15 8 52.7	7.525
10	9 35 37.52	2.1513	15 1 18.7	7.609
11	9 37 46.59	2.1509	14 53 39.6	7.693
12	9 39 55.63	2.1505	14 45 55.5	7.776
13	9 42 4.65	2.1503	14 38 6.5	7.858
14	9 44 13.66	2.1500	14 30 12.5	7.941
15	9 46 22.65	2.1497	14 22 13.6	8.022
16	9 48 31.62	2.1494	14 14 9.9	8.102
17	9 50 40.58	2.1492	14 6 1.4	8.183
18	9 52 49.52	2.1489	13 57 48.0	8.263
19	9 54 58.45	2.1487	13 49 29.8	8.343
20	9 57 7.36	2.1484	13 41 6.9	8.421
21	9 59 16.26	2.1483	13 32 39.3	8.499
22	10 1 25.15	2.1481	13 24 7.0	8.578
23	10 3 34.03	2.1479	N.13 15 30.0	8.654

WEDNESDAY 30.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	10 5 42.90	2.1478	N.13 6 48.5	8.730
1	10 7 51.76	2.1476	12 58 2.4	8.807
2	10 10 0.61	2.1475	12 49 11.7	8.883
3	10 12 9.46	2.1474	12 40 16.4	8.958
4	10 14 18.30	2.1473	12 31 16.7	9.032
5	10 16 27.14	2.1473	12 22 12.6	9.106
6	10 18 35.98	2.1473	12 13 4.0	9.179
7	10 20 44.82	2.1473	12 3 51.1	9.252
8	10 22 53.66	2.1473	11 54 33.8	9.324
9	10 25 2.50	2.1474	11 45 12.2	9.396
10	10 27 11.35	2.1475	11 35 46.3	9.467
11	10 29 20.20	2.1476	11 26 16.2	9.536
12	10 31 29.06	2.1478	11 16 42.0	9.605
13	10 33 37.93	2.1479	11 7 3.6	9.675
14	10 35 46.81	2.1481	10 57 21.0	9.743
15	10 37 55.70	2.1483	10 47 34.4	9.811
16	10 40 4.61	2.1486	10 37 43.7	9.878
17	10 42 13.53	2.1488	10 27 49.1	9.943
18	10 44 22.47	2.1492	10 17 50.5	10.010
19	10 46 31.43	2.1495	10 7 47.9	10.075
20	10 48 40.41	2.1499	9 57 41.5	10.139
21	10 50 49.42	2.1503	9 47 31.2	10.203
22	10 52 58.45	2.1508	9 37 17.2	10.265
23	10 55 7.51	2.1513	9 26 59.4	10.328
24	10 57 16.60	2.1518	N. 9 16 37.9	10.389

THURSDAY 31.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	10 57 16.60	2.1518	N. 9 16 37.9	10.389
1	10 59 25.72	2.1523	9 6 12.7	10.450
2	11 1 34.88	2.1529	8 55 43.9	10.510
3	11 3 44.07	2.1535	8 45 11.5	10.569
4	11 5 53.30	2.1543	8 34 35.6	10.628
5	11 8 2.58	2.1550	8 23 56.2	10.685
6	11 10 11.90	2.1557	8 13 13.4	10.742
7	11 12 21.26	2.1564	8 2 27.2	10.798
8	11 14 30.67	2.1573	7 51 37.6	10.854
9	11 16 40.13	2.1582	7 40 44.7	10.909
10	11 18 49.65	2.1591	7 29 48.5	10.963
11	11 20 59.22	2.1600	7 18 49.2	11.015
12	11 23 8.85	2.1610	7 7 46.7	11.068
13	11 25 18.54	2.1620	6 56 41.1	11.119
14	11 27 28.29	2.1631	6 45 32.4	11.169
15	11 29 38.11	2.1643	6 34 20.8	11.218
16	11 31 48.00	2.1653	6 23 6.2	11.268
17	11 33 57.95	2.1665	6 11 48.6	11.317
18	11 36 7.98	2.1678	6 0 28.2	11.363
19	11 38 18.09	2.1692	5 49 5.0	11.409
20	11 40 28.28	2.1705	5 37 39.1	11.454
21	11 42 38.55	2.1718	5 26 10.5	11.499
22	11 44 48.90	2.1733	5 14 39.2	11.543
23	11 46 59.34	2.1748	N. 5 3 5.3	11.586

FRIDAY, JUNE 1.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	11 49 9.87	2.1763	N. 4 51 28.9	11.627

PHASES OF THE MOON.

			d	h	m
☽	First Quarter . . .	May	1	7	6.9
○	Full Moon		8	2	9.7
☾	Last Quarter		14	19	2.7
●	New Moon		22	20	0.6
☽	First Quarter		30	18	23.7

			d	h
☾	Perigee	May	8	7.1
☾	Apogee		22	3.1

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	SUN	W.	86 31 38	3126	87 59 16	3110	89 27 14	3092	90 55 33	3076
	MARS	W.	64 47 38	3031	66 17 12	3015	67 47 6	2998	69 17 22	2981
	JUPITER	W.	57 0 15	2855	58 33 32	2838	60 7 10	2822	61 41 9	2805
	Pollux	W.	16 35 41	3430	17 57 24	3311	19 21 23	3212	20 47 18	3129
	Spica	E.	75 47 49	2791	74 13 13	2780	72 38 19	2765	71 3 5	2750
2	SUN	W.	98 22 28	2986	99 52 58	2967	101 23 52	2948	102 55 10	2929
	MARS	W.	76 54 13	2891	78 26 44	2872	79 59 39	2852	81 32 59	2834
	JUPITER	W.	69 36 36	2719	71 12 51	2702	72 49 29	2683	74 26 32	2664
	Pollux	W.	28 17 38	2859	29 50 50	2820	31 24 52	2783	32 59 42	2750
	Spica	E.	63 1 46	2671	61 24 27	2654	59 46 45	2638	58 8 42	2621
	Antares	E.	108 52 44	2696	107 15 58	2677	105 38 48	2658	104 1 12	2640
3	SUN	W.	110 37 48	2832	112 11 35	2812	113 45 47	2792	115 20 25	2772
	MARS	W.	89 25 52	2736	91 1 44	2717	92 38 2	2697	94 14 46	2678
	JUPITER	W.	82 38 2	2571	84 17 37	2552	85 57 38	2533	87 38 6	2514
	Pollux	W.	41 4 14	2605	42 43 3	2579	44 22 27	2554	46 2 25	2529
	Spica	E.	49 52 48	2540	48 12 30	2524	46 31 50	2508	44 50 48	2493
	Antares	E.	95 46 51	2546	94 6 41	2527	92 26 5	2507	90 45 2	2489
4	SUN	W.	123 20 2	2675	124 57 15	2657	126 34 53	2638	128 12 56	2621
	MARS	W.	102 25 4	2579	104 4 28	2561	105 44 17	2541	107 24 33	2522
	JUPITER	W.	96 7 4	2419	97 50 12	2401	99 33 46	2382	101 17 47	2364
	Pollux	W.	54 30 37	2415	56 13 51	2394	57 57 35	2372	59 41 50	2351
	Regulus	W.	18 3 5	2341	19 48 5	2322	21 33 33	2304	23 19 27	2285
	Spica	E.	36 20 34	2427	34 37 37	2417	32 54 26	2408	31 11 2	2401
	Antares	E.	82 13 15	2397	80 29 36	2378	78 45 30	2361	77 1 0	2344
5	Pollux	W.	68 30 20	2255	70 17 26	2237	72 4 58	2221	73 52 55	2204
	Regulus	W.	32 15 36	2198	34 4 7	2181	35 53 3	2165	37 42 23	2149
	Antares	E.	68 12 22	2263	66 25 28	2249	64 38 14	2235	62 50 38	2222
6	Pollux	W.	82 58 40	2129	84 48 55	2116	86 39 30	2103	88 30 24	2092
	Regulus	W.	46 54 48	2078	48 46 21	2065	50 38 14	2053	52 30 25	2041
	Antares	E.	53 48 4	2167	51 58 46	2159	50 9 16	2152	48 19 36	2147
	a Aquilæ	E.	100 57 55	2630	99 19 41	2611	97 41 1	2595	96 1 59	2580
7	Pollux	W.	97 48 55	2046	99 41 17	2039	101 33 50	2033	103 26 32	2028
	Regulus	W.	61 55 29	1995	63 49 12	1988	65 43 6	1981	67 37 11	1975
	Antares	E.	39 9 58	2144	37 20 6	2150	35 30 23	2159	33 40 54	2173
	a Aquilæ	E.	87 42 22	2529	86 1 50	2525	84 21 11	2522	82 40 28	2520
8	Regulus	W.	77 9 27	1958	79 4 8	1957	80 58 51	1957	82 53 34	1958
	Spica	W.	24 9 59	2125	26 0 20	2102	27 51 16	2085	29 42 38	2072
	a Aquilæ	E.	74 17 26	2546	72 37 16	2558	70 57 23	2571	69 17 48	2588
	Fomalhaut	E.	107 31 0	2243	105 43 36	2237	103 56 3	2231	102 8 22	2228

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	XVIII^{h}	P. L. of Diff.	XXI^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	SUN	W.	92 24 12	3058	93 53 13	3041	95 22 35	3022	96 52 20	3004
	MARS	W.	70 47 59	2962	72 18 59	2945	73 50 20	2927	75 22 5	2909
	JUPITER	W.	63 15 30	2789	64 50 12	2772	66 25 17	2754	68 0 45	2737
	Pollux	W.	22 14 52	3060	23 43 51	3001	25 14 3	2948	26 45 21	2901
	Spica	E.	69 27 31	2734	67 51 36	2719	66 15 21	2702	64 38 44	2686
2	SUN	W.	104 26 52	2909	105 58 59	2891	107 31 30	2871	109 4 26	2851
	MARS	W.	83 6 43	2815	84 40 52	2795	86 15 26	2776	87 50 26	2756
	JUPITER	W.	76 4 0	2646	77 41 52	2627	79 20 10	2609	80 58 53	2590
	Pollux	W.	34 35 16	2719	36 11 31	2688	37 48 27	2659	39 26 2	2632
	Spica	E.	56 30 16	2605	54 51 27	2589	53 12 17	2572	51 32 43	2556
	Antares	E.	102 23 12	2621	100 44 45	2602	99 5 53	2583	97 26 35	2564
3	SUN	W.	116 55 29	2753	118 30 59	2734	120 6 54	2714	121 43 15	2695
	MARS	W.	95 51 56	2657	97 29 34	2638	99 7 37	2618	100 46 7	2599
	JUPITER	W.	89 19 0	2495	91 0 21	2475	92 42 9	2457	94 24 23	2438
	Pollux	W.	47 42 58	2505	49 24 4	2482	51 5 43	2459	52 47 54	2436
	Spica	E.	43 9 25	2478	41 27 41	2464	39 45 38	2450	38 3 15	2438
	Antares	E.	89 3 33	2470	87 21 38	2451	85 39 16	2433	83 56 29	2415
4	SUN	W.	129 51 23	2602	131 30 16	2585	133 9 32	2568	134 49 11	2551
	MARS	W.	109 5 15	2505	110 46 22	2486	112 27 55	2468	114 9 53	2451
	JUPITER	W.	103 2 14	2346	104 47 7	2328	106 32 26	2311	108 18 10	2294
	Pollux	W.	61 26 35	2331	63 11 49	2312	64 57 31	2292	66 43 42	2274
	Regulus	W.	25 5 48	2267	26 52 36	2249	28 39 50	2232	30 27 30	2215
	Spica	E.	29 27 28	2396	27 43 48	2395	26 0 6	2398	24 16 28	2405
	Antares	E.	75 16 5	2327	73 30 45	2310	71 45 0	2294	69 58 52	2279
5	Pollux	W.	75 41 17	2187	77 30 4	2172	79 19 14	2157	81 8 46	2143
	Regulus	W.	39 32 7	2134	41 22 14	2119	43 12 44	2105	45 3 36	2092
	Antares	E.	61 2 43	2209	59 14 28	2197	57 25 56	2186	55 37 7	2176
6	Pollux	W.	90 21 35	2081	92 13 3	2072	94 4 46	2062	95 56 44	2053
	Regulus	W.	54 22 55	2031	56 15 40	2021	58 8 42	2011	60 1 59	2003
	Antares	E.	46 29 48	2142	44 39 53	2140	42 49 55	2139	40 59 55	2141
	α Aquilæ	E.	94 22 36	2566	92 42 54	2554	91 2 56	2545	89 22 45	2536
7	Pollux	W.	105 19 22	2025	107 12 18	2021	109 5 19	2019	110 58 23	2018
	Regulus	W.	69 31 25	1970	71 25 47	1966	73 20 15	1962	75 14 49	1960
	Antares	E.	31 51 45	2190	30 3 2	2213	28 14 54	2242	26 27 29	2278
	α Aquilæ	E.	80 59 43	2522	79 19 0	2525	77 38 21	2530	75 57 49	2536
8	Regulus	W.	84 48 15	1959	86 42 55	1961	88 37 31	1963	90 32 3	1967
	Spica	W.	31 34 21	2061	33 26 20	2053	35 18 32	2048	37 10 51	2045
	α Aquilæ	E.	67 38 36	2607	65 59 50	2629	64 21 34	2653	62 43 51	2682
	Fomalhaut	E.	100 20 36	2226	98 32 47	2226	96 44 58	2227	94 57 10	2229

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	III^{h}	P. L. of Diff.	VI^{h}	P. L. of Diff.	IX^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Regulus	W.	92 26 29	1972	94 20 47	1977	96 14 57	1984	98 8 57	1991
	Spica	W.	39 3 16	2044	40 55 42	2043	42 48 9	2045	44 40 33	2048
	a Aquilæ	E.	61 6 47	2713	59 30 24	2748	57 54 48	2788	56 20 4	2831
	Fomalhaut	E.	93 9 25	2233	91 21 46	2237	89 34 13	2243	87 46 50	2251
	SATURN	E.	102 16 14	1993	100 22 29	1998	98 28 52	2004	96 35 24	2012
	a Pegasi	E.	108 8 1	2345	106 23 7	2344	104 38 11	2343	102 53 15	2344
10	Spica	W.	54 0 52	2079	55 52 24	2088	57 43 42	2098	59 34 44	2108
	a Aquilæ	E.	48 42 27	3129	47 14 52	3209	45 48 54	3298	44 24 40	3397
	Fomalhaut	E.	78 53 18	2307	77 7 29	2322	75 22 2	2338	73 36 58	2355
	SATURN	E.	87 11 10	2057	85 19 4	2067	83 27 14	2078	81 35 41	2091
	a Pegasi	E.	94 9 49	2374	92 25 37	2385	90 41 40	2396	88 57 59	2408
11	Spica	W.	68 45 33	2171	70 34 44	2186	72 23 33	2200	74 12 0	2216
	Antares	W.	24 1 47	2477	25 43 33	2449	27 25 58	2430	29 8 50	2418
	Fomalhaut	E.	64 58 34	2463	63 16 29	2489	61 35 0	2516	59 54 9	2545
	SATURN	E.	72 22 56	2159	70 33 27	2174	68 44 21	2190	66 55 39	2206
	a Pegasi	E.	80 24 38	2489	78 43 9	2509	77 2 8	2530	75 21 36	2552
	SUN	E.	138 38 22	2472	136 56 29	2486	135 14 56	2500	133 33 43	2515
12	Spica	W.	83 8 20	2298	84 54 23	2315	86 40 0	2333	88 25 12	2351
	Antares	W.	37 45 26	2415	39 28 39	2422	41 11 42	2431	42 54 33	2440
	Fomalhaut	E.	51 40 37	2717	50 4 20	2759	48 28 58	2803	46 54 34	2850
	SATURN	E.	57 58 10	2289	56 11 55	2307	54 26 6	2325	52 40 43	2343
	a Pegasi	E.	67 7 0	2679	65 29 52	2708	63 53 23	2739	62 17 35	2771
	SUN	E.	125 13 9	2599	123 34 12	2617	121 55 40	2635	120 17 32	2653
13	Spica	W.	97 4 42	2441	98 47 18	2460	100 29 28	2478	102 11 12	2497
	Antares	W.	51 24 57	2502	53 6 8	2516	54 46 59	2530	56 27 30	2545
	Fomalhaut	E.	39 19 19	3152	37 52 12	3229	36 26 37	3315	35 2 43	3410
	SATURN	E.	44 0 18	2433	42 17 30	2452	40 35 9	2470	38 53 13	2488
	a Pegasi	E.	54 29 46	2958	52 58 40	3001	51 28 28	3047	49 59 13	3096
	SUN	E.	112 13 7	2747	110 37 29	2766	109 2 17	2785	107 27 29	2805
14	Antares	W.	64 44 52	2622	66 23 17	2638	68 1 21	2653	69 39 4	2669
	SATURN	E.	30 29 51	2577	28 50 25	2594	27 11 22	2612	25 32 43	2629
	a Pegasi	E.	42 49 8	3396	41 26 47	3471	40 5 51	3553	38 46 25	3642
	SUN	E.	99 39 42	2898	98 7 21	2917	96 35 24	2935	95 3 50	2954
15	Antares	W.	77 42 27	2745	79 18 7	2760	80 53 27	2775	82 28 28	2789
	SUN	E.	87 31 36	3041	86 2 14	3057	84 33 12	3074	83 4 31	3090
16	Antares	W.	90 18 56	2858	91 52 9	2871	93 25 5	2884	94 57 44	2896
	a Aquilæ	W.	48 18 13	3857	49 32 17	3821	50 46 57	3789	52 2 11	3761
	SUN	E.	75 45 52	3166	74 19 2	3181	72 52 30	3194	71 26 14	3208
17	*a* Aquilæ	W.	58 24 38	3663	59 42 5	3649	60 59 47	3637	62 17 42	3627
	SUN	E.	64 18 50	3271	62 54 5	3282	61 29 33	3294	60 5 15	3305

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	XVIII^{h}	P. L. of Diff.	XXI^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Regulus	W.	100 2 46	1998	101 56 24	2007	103 49 48	2015	105 42 59	2025
	Spica	W.	46 32 53	2052	48 25 7	2057	50 17 12	2063	52 9 8	2071
	a Aquilæ	E.	54 46 16	2880	53 13 31	2932	51 41 53	2991	50 11 29	3057
	Fomalhaut	E.	85 59 39	2260	84 12 40	2269	82 25 55	2281	80 39 28	2293
	SATURN	E.	94 42 8	2019	92 49 3	2027	90 56 11	2036	89 3 33	2046
	a Pegasi	E.	101 8 20	2348	99 23 30	2353	97 38 47	2359	95 54 13	2366
10	Spica	W.	61 25 31	2120	63 16 0	2132	65 6 11	2145	66 56 2	2158
	a Aquilæ	E.	43 2 20	3507	41 42 4	3629	40 24 1	3767	39 8 25	3922
	Fomalhaut	E.	71 52 19	2375	70 8 8	2395	68 24 26	2416	66 41 14	2438
	SATURN	E.	79 44 28	2104	77 53 34	2117	76 3 0	2130	74 12 47	2145
	a Pegasi	E.	87 14 36	2422	85 31 33	2437	83 48 51	2453	82 6 32	2471
11	Spica	W.	76 0 4	2232	77 47 44	2247	79 35 1	2264	81 21 53	2281
	Antares	W.	30 51 59	2411	32 35 18	2408	34 18 42	2408	36 2 6	2410
	Fomalhaut	E.	58 13 58	2575	56 34 28	2608	54 55 44	2642	53 17 46	2678
	SATURN	E.	65 7 20	2222	63 19 25	2239	61 31 55	2256	59 44 50	2272
	a Pegasi	E.	73 41 35	2575	72 2 5	2599	70 23 8	2624	68 44 46	2651
	SUN	E.	131 52 51	2531	130 12 21	2548	128 32 14	2564	126 52 30	2581
12	Spica	W.	90 9 58	2369	91 54 18	2387	93 38 12	2405	95 21 40	2423
	Antares	W.	44 37 11	2451	46 19 33	2463	48 1 39	2475	49 43 27	2488
	Fomalhaut	E.	45 21 11	2901	43 48 54	2956	42 17 46	3016	40 47 53	3080
	SATURN	E.	50 55 47	2360	49 11 15	2379	47 27 10	2397	45 43 31	2415
	a Pegasi	E.	60 42 29	2805	59 8 7	2841	57 34 32	2877	56 1 44	2916
	SUN	E.	118 39 49	2672	117 2 31	2690	115 25 38	2709	113 49 10	2728
13	Spica	W.	103 52 30	2515	105 33 23	2533	107 13 50	2552	108 53 51	2570
	Antares	W.	58 7 41	2561	59 47 30	2575	61 26 59	2591	63 6 6	2607
	Fomalhaut	E.	33 40 38	3517	32 20 32	3637	31 2 38	3772	29 47 7	3927
	SATURN	E.	37 11 43	2505	35 30 37	2524	33 49 57	2542	32 9 42	2559
	a Pegasi	E.	48 30 59	3148	47 3 48	3204	45 37 43	3263	44 12 48	3327
	SUN	E.	105 53 7	2823	104 19 9	2842	102 45 36	2861	101 12 27	2880
14	Antares	W.	71 16 26	2684	72 53 27	2700	74 30 7	2715	76 6 27	2730
	SATURN	E.	23 54 28	2646	22 16 35	2663	20 39 5	2679	19 1 57	2696
	a Pegasi	E.	37 28 36	3741	36 12 32	3849	34 58 20	3969	33 46 9	4104
	SUN	E.	93 32 39	2971	92 1 50	2989	90 31 23	3007	89 1 19	3024
15	Antares	W.	84 3 10	2803	85 37 34	2818	87 11 39	2831	88 45 27	2845
	SUN	E.	81 36 9	3106	80 8 7	3122	78 40 24	3137	77 12 59	3152
16	Antares	W.	96 30 8	2909	98 2 15	2921	99 34 8	2933	101 5 45	2944
	a Aquilæ	W.	53 17 54	3736	54 34 3	3715	55 50 34	3695	57 7 27	3678
	SUN	E.	70 0 15	3221	68 34 31	3235	67 9 3	3247	65 43 49	3259
17	*a* Aquilæ	W.	63 35 47	3617	64 54 3	3609	66 12 27	3603	67 30 58	3597
	SUN	E.	58 41 9	3316	57 17 16	3326	55 53 35	3336	54 30 5	3346

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LUNAR DISTANCES.

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			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
18	*a* Aquilæ	W.	68 49 36	3592	70 8 19	3588	71 27 6	3584	72 45 58	3582
	Fomalhaut	W.	34 49 20	3852	36 3 29	3797	37 18 34	3749	38 34 30	3707
	SATURN	W.	19 52 38	2994	21 22 59	3001	22 53 11	3007	24 23 15	3014
	SUN	E.	53 6 47	3355	51 43 39	3365	50 20 42	3373	48 57 55	3382
19	*a* Aquilæ	W.	79 20 46	3577	80 39 46	3577	81 58 45	3578	83 17 43	3579
	Fomalhaut	W.	45 3 46	3557	46 23 7	3536	47 42 51	3517	49 2 56	3500
	a Pegasi	W.	33 8 31	4403	34 13 50	4304	35 20 39	4217	36 28 49	4140
	SATURN	W.	31 51 33	3044	33 20 51	3049	34 50 3	3054	36 19 9	3058
	SUN	E.	42 6 23	3422	40 44 32	3430	39 22 49	3438	38 1 15	3445
20	*a* Aquilæ	W.	89 52 4	3592	91 10 47	3595	92 29 27	3600	93 48 1	3604
	Fomalhaut	W.	55 47 30	3436	57 9 6	3427	58 30 52	3418	59 52 48	3410
	SATURN	W.	43 43 25	3077	45 12 3	3080	46 40 37	3083	48 9 8	3085
	a Pegasi	W.	42 25 46	3863	43 39 43	3823	44 54 21	3787	46 9 37	3755
	SUN	E.	31 15 30	3483	29 54 47	3492	28 34 14	3500	27 13 50	3510
25	SUN	W.	23 58 36	3477	25 19 26	3462	26 40 33	3450	28 1 53	3439
	Regulus	E.	61 34 8	3023	60 4 24	3018	58 34 33	3014	57 4 37	3009
26	SUN	W.	34 51 42	3386	36 14 15	3376	37 36 59	3366	38 59 54	3356
	Regulus	E.	49 33 17	2981	48 2 40	2974	46 31 55	2967	45 1 1	2961
	Spica	E.	103 20 20	3011	101 50 21	3005	100 20 14	2998	98 49 59	2990
27	SUN	W.	45 57 20	3307	47 21 24	3296	48 45 40	3286	50 10 8	3275
	VENUS	W.	20 33 22	3497	21 53 50	3474	23 14 43	3453	24 36 0	3433
	Regulus	E.	37 24 20	2924	35 52 31	2915	34 20 31	2907	32 48 21	2898
	Spica	E.	91 16 23	2952	89 45 10	2944	88 13 47	2936	86 42 14	2927
28	SUN	W.	57 15 44	3218	58 41 32	3206	60 7 34	3194	61 33 51	3181
	VENUS	W.	31 27 34	3348	32 50 50	3333	34 14 24	3317	35 38 16	3301
	Regulus	E.	25 4 34	2851	23 31 12	2840	21 57 36	2830	20 23 47	2820
	Spica	E.	79 1 32	2880	77 28 47	2870	75 55 49	2859	74 22 38	2849
29	SUN	W.	68 49 9	3114	70 17 2	3100	71 45 12	3085	73 13 40	3071
	VENUS	W.	42 42 9	3224	44 7 50	3208	45 33 50	3191	47 0 10	3175
	Pollux	W.	24 53 43	3029	26 23 20	2988	27 53 48	2950	29 25 4	2916
	Spica	E.	66 33 10	2792	64 58 32	2781	63 23 39	2769	61 48 30	2757
30	SUN	W.	80 40 35	2993	82 10 57	2978	83 41 38	2961	85 12 40	2944
	VENUS	W.	54 16 42	3092	55 45 2	3075	57 13 42	3057	58 42 44	3039
	Pollux	W.	37 11 14	2778	38 46 11	2753	40 21 40	2730	41 57 40	2708
	Spica	E.	53 48 42	2694	52 11 54	2681	50 34 49	2669	48 57 28	2656
	Antares	E.	99 42 35	2704	98 6 0	2688	96 29 4	2673	94 51 48	2657
31	SUN	W.	92 53 10	2859	94 26 22	2842	95 59 56	2823	97 33 54	2806
	VENUS	W.	66 13 24	2950	67 44 40	2932	69 16 18	2913	70 48 21	2894
	Pollux	W.	50 4 51	2604	51 43 41	2584	53 22 58	2564	55 2 43	2545
	Regulus	W.	13 36 8	2530	15 16 40	2512	16 57 37	2491	18 38 59	2477
	Spica	E.	40 46 30	2596	39 7 30	2586	37 28 16	2577	35 48 49	2567
	Antares	E.	86 40 10	2578	85 0 45	2563	83 20 59	2547	81 40 51	2530

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LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	XVIII^{h}	P. L. of Diff.	XXI^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
18	α Aquilæ	W.	74 4 52	3580	75 23 48	3578	76 42 47	3577	78 1 46	3577
	Fomalhaut	W.	39 51 10	3670	41 8 29	3637	42 26 24	3607	43 44 51	3581
	Saturn	W.	25 53 10	3021	27 22 57	3027	28 52 36	3033	30 22 8	3039
	Sun	E.	47 35 18	3391	46 12 51	3399	44 50 33	3407	43 28 24	3414
19	α Aquilæ	W.	84 36 40	3581	85 55 35	3583	87 14 28	3586	88 33 18	3589
	Fomalhaut	W.	50 23 20	3485	51 44 1	3471	53 4 57	3459	54 26 7	3447
	α Pegasi	W.	37 38 12	4072	38 48 41	4010	40 0 11	3956	41 12 34	3908
	Saturn	W.	37 48 10	3062	39 17 6	3066	40 45 57	3070	42 14 43	3074
	Sun	E.	36 39 49	3453	35 18 32	3460	33 57 23	3467	32 36 22	3475
20	α Aquilæ	W.	95 6 31	3609	96 24 55	3614	97 43 14	3621	99 1 26	3627
	Fomalhaut	W.	61 14 53	3402	62 37 7	3396	63 59 28	3389	65 21 57	3383
	Saturn	W.	49 37 36	3087	51 6 1	3089	52 34 24	3091	54 2 44	3092
	α Pegasi	W.	47 25 26	3725	48 41 47	3698	49 58 36	3673	51 15 52	3649
	Sun	E.	25 53 37	3521	24 33 36	3533	23 13 48	3546	21 54 14	3560
25	Sun	W.	29 23 26	3427	30 45 12	3416	32 7 11	3406	33 29 21	3396
	Regulus	E.	55 34 35	3003	54 4 26	2998	52 34 10	2992	51 3 47	2986
26	Sun	W.	40 23 1	3347	41 46 18	3337	43 9 47	3326	44 33 28	3317
	Regulus	E.	43 29 59	2954	41 58 48	2946	40 27 28	2939	38 55 59	2931
	Spica	E.	97 19 34	2984	95 49 1	2976	94 18 18	2968	92 47 25	2961
27	Sun	W.	51 34 49	3264	52 59 43	3253	54 24 50	3242	55 50 10	3230
	Venus	W.	25 57 39	3415	27 19 38	3397	28 41 58	3381	30 4 36	3364
	Regulus	E.	31 15 59	2889	29 43 26	2880	28 10 41	2870	26 37 44	2860
	Spica	E.	85 10 29	2918	83 38 33	2909	82 6 25	2899	80 34 5	2889
28	Sun	W.	63 0 23	3168	64 27 11	3155	65 54 14	3141	67 21 34	3128
	Venus	W.	37 2 26	3285	38 26 55	3270	39 51 41	3254	41 16 46	3239
	Regulus	E.	18 49 45	2808	17 15 28	2798	15 40 57	2788	14 6 13	2777
	Spica	E.	72 49 13	2838	71 15 34	2827	69 41 41	2815	68 7 33	2804
29	Sun	W.	74 42 25	3056	76 11 29	3040	77 40 52	3025	79 10 34	3010
	Venus	W.	48 26 49	3159	49 53 47	3142	51 21 5	3125	52 48 44	3109
	Pollux	W.	30 57 2	2884	32 29 41	2855	34 2 57	2828	35 36 48	2802
	Spica	E.	60 13 5	2744	58 37 24	2732	57 1 27	2719	55 25 12	2707
30	Sun	W.	86 44 3	2928	88 15 47	2910	89 47 53	2894	91 20 20	2876
	Venus	W.	60 12 8	3022	61 41 53	3004	63 12 1	2986	64 42 31	2968
	Pollux	W.	43 34 9	2686	45 11 7	2665	46 48 34	2645	48 26 28	2624
	Spica	E.	47 19 49	2644	45 41 54	2632	44 3 42	2620	42 25 14	2608
	Antares	E.	93 14 11	2642	91 36 13	2627	89 57 54	2610	88 19 13	2594
31	Sun	W.	99 8 14	2788	100 42 58	2770	102 18 5	2752	103 53 36	2735
	Venus	W.	72 20 47	2876	73 53 37	2858	75 26 50	2839	77 0 28	2820
	Pollux	W.	56 42 54	2525	58 23 33	2506	60 4 37	2487	61 46 9	2468
	Regulus	W.	20 20 44	2460	22 2 54	2443	23 45 28	2426	25 28 26	2408
	Spica	E.	34 9 9	2559	32 29 17	2553	30 49 17	2548	29 9 10	2546
	Antares	E.	80 0 20	2515	78 19 27	2499	76 38 12	2482	74 56 34	2467

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Apparent Declination.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from / Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Frid.	1	4 33 41.95	10.219	N.21 58 4.6	+ 21.03	15 48.03	68.35	2 31.88	0.362
Sat.	2	4 37 47.40	10.236	22 6 17.8	20.07	15 47.90	68.41	2 23.00	0.378
SUN.	3	4 41 53.24	10.252	22 14 7.9	19.10	15 47.77	68.47	2 13.75	0.393
Mon.	4	4 45 59.43	10.267	22 21 34.8	+ 18.12	15 47.64	68.52	2 4.14	0.408
Tues.	5	4 50 5.98	10.281	22 28 38.1	17.14	15 47.52	68.57	1 54.17	0.422
Wed.	6	4 54 12.87	10.294	22 35 17.9	16.16	15 47.40	68.61	1 43.87	0.436
Thur.	7	4 58 20.08	10.307	22 41 33.8	+ 15.17	15 47.28	68.65	1 33.24	0.449
Frid.	8	5 2 27.59	10.320	22 47 25.9	14.17	15 47.17	68.69	1 22.32	0.461
Sat.	9	5 6 35.41	10.332	22 52 54.1	13.17	15 47.06	68.73	1 11.10	0.473
SUN.	10	5 10 43.50	10.343	22 57 58.2	+ 12.16	15 46.95	68.76	0 59.60	0.484
Mon.	11	5 14 51.86	10.354	23 2 38.0	11.15	15 46.84	68.79	0 47.83	0.495
Tues.	12	5 19 0.45	10.363	23 6 53.6	10.14	15 46.74	68.82	0 35.82	0.505
Wed.	13	5 23 9.27	10.372	23 10 44.8	+ 9.12	15 46.64	68.85	0 23.59	0.514
Thur.	14	5 27 18.28	10.380	23 14 11.5	8.10	15 46.54	68.87	0 11.17	0.521
Frid.	15	5 31 27.46	10.387	23 17 13.7	7.08	15 46.45	68.89	0 1.42	0.528
Sat.	16	5 35 36.81	10.393	23 19 51.2	+ 6.05	15 46.36	68.91	0 14.17	0.534
SUN.	17	5 39 46.29	10.397	23 22 4.2	5.02	15 46.28	68.92	0 27.06	0.539
Mon.	18	5 43 55.86	10.400	23 23 52.3	3.99	15 46.21	68.93	0 40.04	0.543
Tues.	19	5 48 5.50	10.403	23 25 15.8	+ 2.96	15 46.14	68.94	0 53.09	0.545
Wed.	20	5 52 15.20	10.405	23 26 14.5	1.93	15 46.08	68.95	1 6.20	0.546
Thur.	21	5 56 24.92	10.405	23 26 48.4	+ 0.90	15 46.02	68.95	1 19.32	0.547
Frid.	22	6 0 34.63	10.404	23 26 57.5	− 0.14	15 45.97	68.94	1 32.44	0.546
Sat.	23	6 4 44.31	10.403	23 26 41.8	1.17	15 45.92	68.94	1 45.53	0.544
SUN.	24	6 8 53.93	10.400	23 26 1.2	2.20	15 45.88	68.93	1 58.56	0.540
Mon.	25	6 13 3.46	10.395	23 24 55.9	− 3.24	15 45.84	68.92	2 11.49	0.536
Tues.	26	6 17 12.87	10.389	23 23 25.8	4.27	15 45.81	68.90	2 24.31	0.531
Wed.	27	6 21 22.15	10.383	23 21 31.1	5.29	15 45.78	68.88	2 37.00	0.525
Thur.	28	6 25 31.26	10.376	23 19 11.6	− 6.32	15 45.76	68.86	2 49.52	0.518
Frid.	29	6 29 40.17	10.367	23 16 27.6	7.34	15 45.74	68.83	3 1.84	0.509
Sat.	30	6 33 48.87	10.358	23 13 19.1	8.36	15 45.73	68.81	3 13.95	0.499
SUN.	31	6 37 57.33	10.348	N.23 9 46.2	− 9.38	15 45.72	68.78	3 25.82	0.489

NOTE.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.19$ from the sidereal time. The sign + prefixed to the hourly change of declination indicates that north declinations are increasing; the sign − indicates that north declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Apparent Declination.	THE SUN'S Diff. for 1 Hour.	Equation of Time, to be Added to / Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Frid.	1	4 33 42.38	10.218	N.21 58 5.5	+21.03	2 31.86	0.362	4 36 14.24
Sat.	2	4 37 47.81	10.234	22 6 18.6	20.07	2 22.99	0.378	4 40 10.80
SUN.	3	4 41 53.62	10.250	22 14 8.6	19.10	2 13.74	0.393	4 44 7.36
Mon.	4	4 45 59.79	10.265	22 21 35.4	+18.12	2 4.13	0.408	4 48 3.92
Tues.	5	4 50 6.31	10.279	22 28 38.6	17.14	1 54.16	0.422	4 52 0.47
Wed.	6	4 54 13.17	10.292	22 35 18.3	16.16	1 43.86	0.436	4 55 57.03
Thur.	7	4 58 20.35	10.305	22 41 34.2	+15.17	1 33.23	0.449	4 59 53.58
Frid.	8	5 2 27.83	10.318	22 47 26.2	14.17	1 22.31	0.461	5 3 50.14
Sat.	9	5 6 35.61	10.330	22 52 54.3	13.17	1 11.09	0.473	5 7 46.70
SUN.	10	5 10 43.67	10.341	22 57 58.3	+12.16	0 59.59	0.484	5 11 43.26
Mon.	11	5 14 51.99	10.352	23 2 38.1	11.15	0 47.82	0.495	5 15 39.81
Tues.	12	5 19 0.55	10.361	23 6 53.7	10.14	0 35.82	0.505	5 19 36.37
Wed.	13	5 23 9.33	10.370	23 10 44.8	+ 9.12	0 23.59	0.514	5 23 32.92
Thur.	14	5 27 18.31	10.378	23 14 11.5	8.10	0 11.17	0.521	5 27 29.48
Frid.	15	5 31 27.46	10.385	23 17 13.7	7.08	0 1.42	0.528	5 31 26.04
Sat.	16	5 35 36.77	10.391	23 19 51.2	+ 6.05	0 14.17	0.534	5 35 22.60
SUN.	17	5 39 46.21	10.395	23 22 4.2	5.02	0 27.06	0.539	5 39 19.15
Mon.	18	5 43 55.74	10.398	23 23 52.3	3.99	0 40.03	0.543	5 43 15.71
Tues.	19	5 48 5.35	10.401	23 25 15.8	+ 2.96	0 53.08	0.545	5 47 12.27
Wed.	20	5 52 15.01	10.403	23 26 14.5	1.93	1 6.19	0.546	5 51 8.82
Thur.	21	5 56 24.69	10.403	23 26 48.4	+ 0.90	1 19.31	0.547	5 55 5.38
Frid.	22	6 0 34.36	10.402	23 26 57.5	− 0.14	1 32.42	0.546	5 59 1.94
Sat.	23	6 4 44.01	10.401	23 26 41.8	1.17	1 45.51	0.544	6 2 58.50
SUN.	24	6 8 53.59	10.398	23 26 1.3	2.20	1 58.54	0.540	6 6 55.05
Mon.	25	6 13 3.08	10.393	23 24 56.0	− 3.24	2 11.47	0.536	6 10 51.61
Tues.	26	6 17 12.46	10.387	23 23 26.0	4.27	2 24.29	0.531	6 14 48.17
Wed.	27	6 21 21.70	10.381	23 21 31.3	5.29	2 36.98	0.525	6 18 44.72
Thur.	28	6 25 30.77	10.374	23 19 11.9	− 6.32	2 49.49	0.518	6 22 41.28
Frid.	29	6 29 39.65	10.365	23 16 28.0	7.34	3 1.81	0.509	6 26 37.84
Sat.	30	6 33 48.32	10.356	23 13 19.6	8.36	3 13.92	0.499	6 30 34.40
SUN.	31	6 37 56.74	10.346	N.23 9 46.7	− 9.38	3 25.79	0.489	6 34 30.95

NOTE—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign + prefixed to the hourly change of declination indicates that north declinations are increasing; the sign − indicates that north declinations are decreasing.

Diff. for 1 Hour,
$+9^s.8565$.
(Table III.)

AT GREENWICH MEAN NOON.								
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.			
		λ	λ′					
		° ′ ″	′ ″	″	″			h m s
1	152	70 4 5.0	3 57.3	143.69	+ 0.26	0.006 1272	+ 25.5	19 20 35.10
2	153	71 1 33.0	1 25.1	143.64	0.34	0.006 1875	24.8	19 16 39.19
3	154	71 58 59.7	58 51.7	143.59	0.38	0.006 2464	24.2	19 12 43.28
4	155	72 56 25.2	56 17.1	143.54	+ 0.40	0.006 3039	+ 23.7	19 8 47.37
5	156	73 53 49.7	53 41.4	143.50	0.39	0.006 3601	23.2	19 4 51.46
6	157	74 51 13.1	51 4.6	143.46	0.34	0.006 4152	22.7	19 0 55.55
7	158	75 48 35.6	48 27.0	143.42	+ 0.27	0.006 4691	+ 22.2	18 56 59.64
8	159	76 45 57.3	45 48.5	143.39	0.17	0.006 5218	21.7	18 53 3.73
9	160	77 43 18.4	43 9.4	143.36	+ 0.05	0.006 5733	21.2	18 49 7.82
10	161	78 40 38.8	40 29.7	143.34	— 0.09	0.006 6234	+ 20.6	18 45 11.90
11	162	79 37 58.8	37 49.5	143.32	0.22	0.006 6721	19.9	18 41 15.99
12	163	80 35 18.3	35 8.8	143.30	0.35	0.006 7191	19.2	18 37 20.08
13	164	81 32 37.3	32 27.7	143.29	— 0.48	0.006 7644	+ 18.5	18 33 24.17
14	165	82 29 56.0	29 46.2	143.27	0.59	0.006 8077	17.7	18 29 28.26
15	166	83 27 14.4	27 4.4	143.26	0.68	0.006 8490	16.8	18 25 32.35
16	167	84 24 32.4	24 22.3	143.24	— 0.74	0.006 8882	+ 15.9	18 21 36.44
17	168	85 21 50.0	21 39.8	143.23	0.77	0.006 9252	14.9	18 17 40.53
18	169	86 19 7.3	18 56.9	143.21	0.78	0.006 9598	13.9	18 13 44.62
19	170	87 16 24.3	16 13.7	143.20	— 0.76	0.006 9920	+ 12.9	18 9 48.70
20	171	88 13 40.9	13 30.1	143.18	0.70	0.007 0218	11.9	18 5 52.79
21	172	89 10 57.2	10 46.2	143.17	0.63	0.007 0491	10.8	18 1 56.88
22	173	90 8 13.0	8 1.9	143.15	— 0.54	0.007 0738	+ 9.8	17 58 0.97
23	174	91 5 28.5	5 17.2	143.14	0.43	0.007 0960	8.7	17 54 5.06
24	175	92 2 43.5	2 32.1	143.12	0.31	0.007 1157	7.7	17 50 9.15
25	176	92 59 58.1	59 46.5	143.10	— 0.19	0.007 1328	+ 6.6	17 46 13.24
26	177	93 57 12.2	57 0.5	143.08	— 0.07	0.007 1475	5.6	17 42 17.33
27	178	94 54 25.9	54 14.0	143.06	+ 0.05	0.007 1598	4.6	17 38 21.42
28	179	95 51 39.1	51 27.0	143.04	+ 0.16	0.007 1698	+ 3.7	17 34 25.50
29	180	96 48 51.8	48 39.6	143.02	0.25	0.007 1776	2.8	17 30 29.59
30	181	97 46 4.1	45 51.7	143.00	0.30	0.007 1834	2.0	17 26 33.68
31	182	98 43 15.9	43 3.4	142.99	+ 0.33	0.007 1873	+ 1.2	17 22 37.77

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ′ are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour,
— $9^{s}.8296$.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 59.1	16 6.3	58 34.2	+ 2.19	59 0.4	+ 2.17	7 28.0	2.10	9.2
2	16 13.3	16 19.9	59 26.0	2.10	59 50.5	1.97	8 19.0	2.17	10.2
3	16 26.1	16 31.6	60 13.1	1.78	60 33.2	1.55	9 12.1	2.26	11.2
4	16 36.2	16 39.8	60 50.2	+ 1.27	61 3.5	+ 0.93	10 7.8	2.38	12.2
5	16 42.3	16 43.5	61 12.5	+ 0.57	61 17.0	+ 0.17	11 6.4	2.50	13.2
6	16 43.4	16 41.9	61 16.5	− 0.24	61 11.2	− 0.64	12 7.6	2.58	14.2
7	16 39.2	16 35.2	61 1.1	− 1.03	60 46.6	− 1.39	13 9.9	2.59	15.2
8	16 30.2	16 24.2	60 28.0	1.70	60 6.0	1.95	14 11.4	2.51	16.2
9	16 17.4	16 10.1	59 41.3	2.15	59 14.5	2.29	15 10.4	2.38	17.2
10	16 2.4	15 54.6	58 46.3	− 2.38	58 17.5	− 2.41	16 5.7	2.22	18.2
11	15 46.7	15 39.0	57 48.6	2.39	57 20.2	2.33	16 57.0	2.06	19.2
12	15 31.5	15 24.4	56 52.8	2.24	56 26.7	2.10	17 44.8	1.93	20.2
13	15 17.8	15 11.7	56 2.4	− 1.95	55 40.0	− 1.77	18 30.0	1.84	21.2
14	15 6.2	15 1.3	55 19.8	1.59	55 1.9	1.40	19 13.4	1.78	22.2
15	14 57.0	14 53.4	54 46.2	1.21	54 32.9	1.02	19 55.8	1.77	23.2
16	14 50.4	14 48.0	54 21.9	− 0.83	54 13.1	− 0.64	20 38.3	1.78	24.2
17	14 46.2	14 45.0	54 6.6	0.46	54 2.1	− 0.29	21 21.4	1.82	25.2
18	14 44.3	14 44.1	53 59.6	− 0.13	53 59.0	+ 0.02	22 5.7	1.88	26.2
19	14 44.4	14 45.1	54 0.1	+ 0.16	54 2.8	+ 0.29	22 51.6	1.95	27.2
20	14 46.3	14 47.8	54 7.0	0.40	54 12.6	0.51	23 39.1	2.01	28.2
21	14 49.7	14 51.9	54 19.5	0.62	54 27.5	0.71	☌	. .	29.2
22	14 54.4	14 57.2	54 36.7	+ 0.80	54 46.9	+ 0.89	0 27.9	2.05	0.5
23	15 0.3	15 3.6	54 58.1	0.97	55 10.3	1.05	1 17.7	2.08	1.5
24	15 7.2	15 11.0	55 23.4	1.13	55 37.5	1.20	2 7.7	2.08	2.5
25	15 15.1	15 19.4	55 52.5	+ 1.28	56 8.5	+ 1.36	2 57.4	2.06	3.5
26	15 24.0	15 28.9	56 25.4	1.44	56 43.2	1.51	3 46.6	2.04	4.5
27	15 34.0	15 39.3	57 1.8	1.58	57 21.2	1.64	4 35.3	2.02	5.5
28	15 44.7	15 50.3	57 41.3	+ 1.69	58 1.9	+ 1.72	5 23.8	2.03	6.5
29	15 56.0	16 1.7	58 22.7	1.73	58 43.5	1.72	6 12.8	2.07	7.5
30	16 7.3	16 12.7	59 4.0	1.68	59 23.8	1.60	7 3.1	2.14	8.5
31	16 17.7	16 22.3	59 42.4	+ 1.50	59 59.4	+ 1.32	7 55.6	2.24	9.5

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 1.					SUNDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	11 49 9.87	2.1763	N. 4 51 28.9	11.627	0	13 36 18.62	2.3070	S. 4 54 28.1	12.327
1	11 51 20.49	2.1778	4 39 50.1	11.668	1	13 38 37.16	2.3109	5 6 47.2	12.309
2	11 53 31.21	2.1795	4 28 8.8	11.708	2	13 40 55.93	2.3148	5 19 5.2	12.291
3	11 55 42.03	2.1812	4 16 25.1	11.747	3	13 43 14.93	2.3188	5 31 22.1	12.271
4	11 57 52.95	2.1828	4 4 39.2	11.784	4	13 45 34.18	2.3228	5 43 37.7	12.249
5	12 0 3.97	2.1846	3 52 51.0	11.821	5	13 47 53.66	2.3268	5 55 52.0	12.227
6	12 2 15.10	2.1864	3 41 0.7	11.857	6	13 50 13.39	2.3309	6 8 4.9	12.202
7	12 4 26.34	2.1883	3 29 8.2	11.893	7	13 52 33.37	2.3350	6 20 16.2	12.175
8	12 6 37.69	2.1902	3 17 13.6	11.927	8	13 54 53.59	2.3392	6 32 25.9	12.148
9	12 8 49.16	2.1922	3 5 17.0	11.959	9	13 57 14.07	2.3433	6 44 33.9	12.119
10	12 11 0.75	2.1942	2 53 18.5	11.991	10	13 59 34.79	2.3475	6 56 40.2	12.088
11	12 13 12.46	2.1962	2 41 18.1	12.022	11	14 1 55.77	2.3518	7 8 44.5	12.055
12	12 15 24.29	2.1983	2 29 15.9	12.052	12	14 4 17.00	2.3560	7 20 46.8	12.021
13	12 17 36.25	2.2004	2 17 11.9	12.080	13	14 6 38.49	2.3603	7 32 47.0	11.986
14	12 19 48.34	2.2027	2 5 6.3	12.107	14	14 9 0.24	2.3647	7 44 45.1	11.949
15	12 22 0.57	2.2049	1 52 59.1	12.133	15	14 11 22.25	2.3691	7 56 40.9	11.910
16	12 24 12.93	2.2072	1 40 50.3	12.159	16	14 13 44.53	2.3735	8 8 34.3	11.870
17	12 26 25.43	2.2095	1 28 40.0	12.184	17	14 16 7.07	2.3778	8 20 25.3	11.828
18	12 28 38.07	2.2119	1 16 28.2	12.208	18	14 18 29.87	2.3823	8 32 13.7	11.784
19	12 30 50.86	2.2144	1 4 15.1	12.229	19	14 20 52.95	2.3868	8 43 59.4	11.739
20	12 33 3.80	2.2169	0 52 0.7	12.250	20	14 23 16.29	2.3913	8 55 42.4	11.692
21	12 35 16.89	2.2195	0 39 45.1	12.270	21	14 25 39.90	2.3958	9 7 22.5	11.644
22	12 37 30.14	2.2221	0 27 28.3	12.288	22	14 28 3.79	2.4003	9 18 59.7	11.595
23	12 39 43.54	2.2248	N. 0 15 10.5	12.306	23	14 30 27.94	2.4048	S. 9 30 33.9	11.543
	SATURDAY 2.					MONDAY 4.			
0	12 41 57.11	2.2275	N. 0 2 51.6	12.323	0	14 32 52.37	2.4094	S. 9 42 4.9	11.490
1	12 44 10.84	2.2302	S. 0 9 28.2	12.338	1	14 35 17.07	2.4140	9 53 32.7	11.435
2	12 46 24.73	2.2330	0 21 48.9	12.352	2	14 37 42.05	2.4187	10 4 57.1	11.378
3	12 48 38.80	2.2359	0 34 10.4	12.364	3	14 40 7.31	2.4233	10 16 18.1	11.320
4	12 50 53.04	2.2388	0 46 32.6	12.375	4	14 42 32.84	2.4278	10 27 35.5	11.260
5	12 53 7.45	2.2417	0 58 55.4	12.385	5	14 44 58.65	2.4325	10 38 49.3	11.198
6	12 55 22.04	2.2448	1 11 18.8	12.394	6	14 47 24.74	2.4371	10 49 59.3	11.135
7	12 57 36.82	2.2478	1 23 42.7	12.402	7	14 49 51.10	2.4418	11 1 5.5	11.070
8	12 59 51.78	2.2509	1 36 7.1	12.408	8	14 52 17.75	2.4464	11 12 7.7	11.003
9	13 2 6.93	2.2541	1 48 31.7	12.413	9	14 54 44.67	2.4510	11 23 5.9	10.936
10	13 4 22.27	2.2573	2 0 56.6	12.417	10	14 57 11.87	2.4556	11 34 0.0	10.866
11	13 6 37.80	2.2605	2 13 21.7	12.419	11	14 59 39.34	2.4603	11 44 49.8	10.794
12	13 8 53.53	2.2638	2 25 46.9	12.420	12	15 2 7.10	2.4649	11 55 35.3	10.721
13	13 11 9.46	2.2672	2 38 12.1	12.420	13	15 4 35.13	2.4695	12 6 16.3	10.646
14	13 13 25.59	2.2705	2 50 37.3	12.419	14	15 7 3.44	2.4742	12 16 52.8	10.570
15	13 15 41.92	2.2739	3 3 2.4	12.416	15	15 9 32.03	2.4788	12 27 24.7	10.492
16	13 17 58.46	2.2775	3 15 27.2	12.411	16	15 12 0.90	2.4834	12 37 51.8	10.412
17	13 20 15.22	2.2811	3 27 51.7	12.406	17	15 14 30.04	2.4880	12 48 14.1	10.330
18	13 22 32.19	2.2846	3 40 15.9	12.399	18	15 16 59.46	2.4926	12 58 31.4	10.247
19	13 24 49.37	2.2882	3 52 39.6	12.390	19	15 19 29.15	2.4971	13 8 43.7	10.163
20	13 27 6.77	2.2918	4 5 2.7	12.380	20	15 21 59.11	2.5016	13 18 50.9	10.076
21	13 29 24.39	2.2956	4 17 25.2	12.369	21	15 24 29.34	2.5061	13 28 52.8	9.988
22	13 31 42.24	2.2994	4 29 47.0	12.357	22	15 26 59.84	2.5106	13 38 49.4	9.898
23	13 34 0.32	2.3032	4 42 8.0	12.343	23	15 29 30.61	2.5151	13 48 40.6	9.808
24	13 36 18.62	2.3070	S. 4 54 28.1	12.327	24	15 32 1.65	2.5196	S. 13 58 26.3	9.715

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 5.					THURSDAY 7.				
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	15 32 1.65	2.5196	S. 13 58 26.3	9.715	0.	17 36 59.66	2.6554	S. 19 31 4.6	3.708
1	15 34 32.96	2.5240	14 8 6.4	9.620	1	17 39 39.00	2.6558	19 34 42.7	3.562
2	15 37 4.53	2.5283	14 17 40.7	9.523	2	17 42 18.36	2.6562	19 38 12.0	3.413
3	15 39 36.36	2.5326	14 27 9.2	9.427	3	17 44 57.74	2.6563	19 41 32.3	3.265
4	15 42 8.44	2.5369	14 36 31.9	9.328	4	17 47 37.12	2.6563	19 44 43.8	3.117
5	15 44 40.79	2.5412	14 45 48.5	9.226	5	17 50 16.50	2.6563	19 47 46.4	2.968
6	15 47 13.39	2.5454	14 54 59.0	9.124	6	17 52 55.87	2.6561	19 50 40.0	2.819
7	15 49 46.24	2.5496	15 4 3.4	9.021	7	17 55 35.23	2.6557	19 53 24.7	2.671
8	15 52 19.34	2.5538	15 13 1.5	8.916	8	17 58 14.56	2.6553	19 56 0.5	2.522
9	15 54 52.69	2.5578	15 21 53.3	8.809	9	18 0 53.86	2.6548	19 58 27.3	2.372
10	15 57 26.28	2.5618	15 30 38.6	8.700	10	18 3 33.13	2.6541	20 0 45.1	2.222
11	16 0 0.11	2.5658	15 39 17.3	8.591	11	18 6 12.35	2.6532	20 2 53.9	2.073
12	16 2 34.17	2.5697	15 47 49.5	8.480	12	18 8 51.51	2.6523	20 4 53.8	1.923
13	16 5 8.47	2.5736	15 56 14.9	8.368	13	18 11 30.62	2.6512	20 6 44.7	1.773
14	16 7 43.00	2.5773	16 4 33.6	8.253	14	18 14 9.65	2.6499	20 8 26.6	1.623
15	16 10 17.75	2.5811	16 12 45.3	8.138	15	18 16 48.61	2.6487	20 9 59.5	1.474
16	16 12 52.73	2.5848	16 20 50.1	8.022	16	18 19 27.49	2.6472	20 11 23.5	1.325
17	16 15 27.92	2.5883	16 28 47.9	7.903	17	18 22 6.27	2.6455	20 12 38.5	1.176
18	16 18 3.33	2.5919	16 36 38.5	7.783	18	18 24 44.95	2.6438	20 13 44.6	1.027
19	16 20 38.95	2.5954	16 44 21.9	7.663	19	18 27 23.52	2.6419	20 14 41.7	0.878
20	16 23 14.78	2.5988	16 51 58.0	7.541	20	18 30 1.98	2.6400	20 15 29.9	0.729
21	16 25 50.80	2.6020	16 59 26.8	7.418	21	18 32 40.32	2.6378	20 16 9.2	0.581
22	16 28 27.02	2.6053	17 6 48.2	7.293	22	18 35 18.52	2.6356	20 16 39.6	0.433
23	16 31 3.44	2.6085	S. 17 14 2.0	7.168	23	18 37 56.59	2.6333	S. 20 17 1.1	0.285
WEDNESDAY 6.					FRIDAY 8.				
0	16 33 40.04	2.6115	S. 17 21 8.3	7.041	0	18 40 34.52	2.6309	S. 20 17 13.8	0.138
1	16 36 16.82	2.6145	17 28 6.9	6.913	1	18 43 12.30	2.6283	20 17 17.7	0.009
2	16 38 53.78	2.6174	17 34 57.8	6.783	2	18 45 49.92	2.6256	20 17 12.7	0.156
3	16 41 30.91	2.6203	17 41 40.9	6.653	3	18 48 27.37	2.6228	20 16 59.0	0.302
4	16 44 8.21	2.6230	17 48 16.1	6.521	4	18 51 4.65	2.6199	20 16 36.5	0.448
5	16 46 45.67	2.6256	17 54 43.4	6.388	5	18 53 41.76	2.6169	20 16 5.3	0.593
6	16 49 23.28	2.6281	18 1 2.7	6.255	6	18 56 18.68	2.6138	20 15 25.4	0.737
7	16 52 1.04	2.6305	18 7 14.0	6.121	7	18 58 55.41	2.6105	20 14 36.9	0.881
8	16 54 38.94	2.6328	18 13 17.2	5.985	8	19 1 31.94	2.6071	20 13 39.7	1.024
9	16 57 16.98	2.6351	18 19 12.2	5.848	9	19 4 8.26	2.6036	20 12 34.0	1.166
10	16 59 55.15	2.6373	18 24 59.0	5.712	10	19 6 44.37	2.6001	20 11 19.8	1.308
11	17 2 33.45	2.6393	18 30 37.6	5.573	11	19 9 20.27	2.5964	20 9 57.1	1.449
12	17 5 11.86	2.6412	18 36 7.8	5.433	12	19 11 55.94	2.5926	20 8 25.9	1.590
13	17 7 50.39	2.6430	18 41 29.6	5.294	13	19 14 31.38	2.5887	20 6 46.3	1.729
14	17 10 29.02	2.6447	18 46 43.1	5.153	14	19 17 6.58	2.5847	20 4 58.4	1.868
15	17 13 7.75	2.6463	18 51 48.0	5.011	15	19 19 41.54	2.5806	20 3 2.1	2.007
16	17 15 46.57	2.6478	18 56 44.4	4.869	16	19 22 16.25	2.5764	20 0 57.6	2.143
17	17 18 25.48	2.6492	19 1 32.3	4.727	17	19 24 50.71	2.5722	19 58 44.9	2.280
18	17 21 4.47	2.6504	19 6 11.6	4.583	18	19 27 24.91	2.5678	19 56 24.0	2.416
19	17 23 43.53	2.6515	19 10 42.2	4.438	19	19 29 58.84	2.5633	19 53 55.0	2.550
20	17 26 22.65	2.6526	19 15 4.2	4.293	20	19 32 32.50	2.5588	19 51 18.0	2.683
21	17 29 1.84	2.6535	19 19 17.4	4.148	21	19 35 5.89	2.5541	19 48 33.0	2.817
22	17 31 41.07	2.6543	19 23 21.9	4.003	22	19 37 38.99	2.5493	19 45 40.0	2.948
23	17 34 20.35	2.6549	19 27 17.7	3.856	23	19 40 11.81	2.5446	19 42 39.2	3.079
24	17 36 59.66	2.6554	S. 19 31 4.6	3.708	24	19 42 44.34	2.5397	S. 19 39 30.5	3.209

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SATURDAY 9.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	19 42 44.34	2.5397	S. 19 39 30.5	3.209
1	19 45 16.57	2.5348	19 36 14.1	3.338
2	19 47 48.51	2.5298	19 32 49.9	3.467
3	19 50 20.14	2.5246	19 29 18.1	3.593
4	19 52 51.46	2.5194	19 25 38.8	3.718
5	19 55 22.47	2.5142	19 21 52.0	3.843
6	19 57 53.16	2.5088	19 17 57.7	3.967
7	20 0 23.53	2.5035	19 13 56.0	4.089
8	20 2 53.58	2.4980	19 9 47.0	4.210
9	20 5 23.29	2.4925	19 5 30.8	4.330
10	20 7 52.68	2.4870	19 1 7.4	4.449
11	20 10 21.73	2.4814	18 56 36.9	4.568
12	20 12 50.45	2.4758	18 51 59.3	4.684
13	20 15 18.82	2.4700	18 47 14.8	4.799
14	20 17 46.85	2.4643	18 42 23.4	4.914
15	20 20 14.53	2.4585	18 37 25.1	5.027
16	20 22 41.87	2.4527	18 32 20.1	5.138
17	20 25 8.85	2.4468	18 27 8.5	5.249
18	20 27 35.48	2.4408	18 21 50.2	5.359
19	20 30 1.75	2.4349	18 16 25.4	5.468
20	20 32 27.67	2.4289	18 10 54.1	5.574
21	20 34 53.22	2.4229	18 5 16.5	5.680
22	20 37 18.42	2.4169	17 59 32.5	5.785
23	20 39 43.25	2.4108	S. 17 53 42.3	5.888

SUNDAY 10.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	20 42 7.71	2.4046	S. 17 47 46.0	5.989
1	20 44 31.80	2.3985	17 41 43.6	6.090
2	20 46 55.53	2.3924	17 35 35.2	6.189
3	20 49 18.89	2.3863	17 29 20.9	6.288
4	20 51 41.88	2.3801	17 23 0.7	6.385
5	20 54 4.50	2.3739	17 16 34.7	6.481
6	20 56 26.75	2.3677	17 10 3.0	6.575
7	20 58 48.62	2.3614	17 3 25.7	6.668
8	21 1 10.12	2.3553	16 56 42.8	6.760
9	21 3 31.25	2.3490	16 49 54.5	6.851
10	21 5 52.00	2.3428	16 43 0.7	6.941
11	21 8 12.38	2.3366	16 36 1.6	7.028
12	21 10 32.39	2.3303	16 28 57.3	7.115
13	21 12 52.02	2.3241	16 21 47.8	7.201
14	21 15 11.28	2.3179	16 14 33.2	7.285
15	21 17 30.17	2.3117	16 7 13.6	7.368
16	21 19 48.68	2.3054	15 59 49.1	7.449
17	21 22 6.82	2.2993	15 52 19.7	7.530
18	21 24 24.60	2.2932	15 44 45.5	7.609
19	21 26 42.00	2.2869	15 37 6.6	7.688
20	21 28 59.03	2.2808	15 29 23.0	7.765
21	21 31 15.69	2.2746	15 21 34.8	7.840
22	21 33 31.98	2.2684	15 13 42.2	7.914
23	21 35 47.90	2.2623	15 5 45.1	7.988
24	21 38 3.46	2.2563	S. 14 57 43.6	8.060

MONDAY 11.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	21 38 3.46	2.2563	S. 14 57 43.6	8.060
1	21 40 18.65	2.2502	14 49 37.9	8.130
2	21 42 33.48	2.2442	14 41 28.0	8.200
3	21 44 47.95	2.2382	14 33 13.9	8.268
4	21 47 2.06	2.2322	14 24 55.8	8.335
5	21 49 15.81	2.2262	14 16 33.7	8.401
6	21 51 29.20	2.2203	14 8 7.7	8.466
7	21 53 42.24	2.2143	13 59 37.8	8.529
8	21 55 54.92	2.2085	13 51 4.2	8.592
9	21 58 7.26	2.2027	13 42 26.8	8.653
10	22 0 19.24	2.1968	13 33 45.8	8.713
11	22 2 30.87	2.1910	13 25 1.2	8.773
12	22 4 42.16	2.1853	13 16 13.1	8.830
13	22 6 53.11	2.1796	13 7 21.6	8.887
14	22 9 3.71	2.1739	12 58 26.7	8.942
15	22 11 13.98	2.1683	12 49 28.6	8.996
16	22 13 23.91	2.1627	12 40 27.2	9.050
17	22 15 33.50	2.1571	12 31 22.6	9.102
18	22 17 42.76	2.1517	12 22 14.9	9.153
19	22 19 51.70	2.1463	12 13 4.2	9.203
20	22 22 0.31	2.1408	12 3 50.5	9.253
21	22 24 8.60	2.1354	11 54 33.9	9.301
22	22 26 16.56	2.1301	11 45 14.4	9.348
23	22 28 24.21	2.1248	S. 11 35 52.1	9.394

TUESDAY 12.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute
0	22 30 31.54	2.1196	S. 11 26 27.1	9.438
1	22 32 38.56	2.1144	11 16 59.5	9.482
2	22 34 45.27	2.1093	11 7 29.3	9.525
3	22 36 51.67	2.1042	10 57 56.5	9.567
4	22 38 57.77	2.0992	10 48 21.3	9.608
5	22 41 3.57	2.0942	10 38 43.6	9.648
6	22 43 9.07	2.0893	10 29 3.5	9.687
7	22 45 14.28	2.0843	10 19 21.2	9.724
8	22 47 19.19	2.0795	10 9 36.6	9.762
9	22 49 23.82	2.0748	9 59 49.8	9.797
10	22 51 28.16	2.0699	9 50 1.0	9.832
11	22 53 32.21	2.0652	9 40 10.0	9.867
12	22 55 35.99	2.0607	9 30 17.0	9.899
13	22 57 39.49	2.0561	9 20 22.1	9.932
14	22 59 42.72	2.0516	9 10 25.2	9.963
15	23 1 45.68	2.0472	9 0 26.5	9.993
16	23 3 48.38	2.0428	8 50 26.0	10.023
17	23 5 50.81	2.0383	8 40 23.8	10.052
18	23 7 52.98	2.0341	8 30 19.8	10.079
19	23 9 54.90	2.0298	8 20 14.3	10.106
20	23 11 56.56	2.0257	8 10 7.1	10.133
21	23 13 57.98	2.0216	7 59 58.4	10.157
22	23 15 59.15	2.0174	7 49 48.3	10.181
23	23 18 0.07	2.0134	7 39 36.7	10.205
24	23 20 0.76	2.0096	S. 7 29 23.7	10.228

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 13.					FRIDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	23 20 0.76	2.0096	S. 7 29 23.7	10.228	0	0 53 2.43	1.8893	N. 0 53 18.4	10.458
1	23 22 1.22	2.0057	7 19 9.4	10.249	1	0 54 55.75	1.8882	1 3 45.5	10.447
2	23 24 1.44	2.0018	7 8 53.8	10.270	2	0 56 49.01	1.8871	1 14 12.0	10.435
3	23 26 1.43	1.9980	6 58 37.0	10.290	3	0 58 42.20	1.8861	1 24 37.7	10.423
4	23 28 1.20	1.9943	6 48 19.0	10.309	4	1 0 35.34	1.8853	1 35 2.7	10.410
5	23 30 0.75	1.9908	6 37 59.9	10.328	5	1 2 28.43	1.8843	1 45 26.9	10.397
6	23 32 0.09	1.9871	6 27 39.7	10.346	6	1 4 21.46	1.8835	1 55 50.3	10.383
7	23 33 59.20	1.9834	6 17 18.4	10.363	7	1 6 14.45	1.8828	2 6 12.9	10.369
8	23 35 58.10	1.9800	6 6 56.2	10.379	8	1 8 7.39	1.8820	2 16 34.6	10.353
9	23 37 56.80	1.9767	5 56 32.9	10.395	9	1 10 0.29	1.8814	2 26 55.3	10.338
10	23 39 55.30	1.9733	5 46 8.8	10.408	10	1 11 53.16	1.8808	2 37 15.1	10.322
11	23 41 53.59	1.9699	5 35 43.9	10.422	11	1 13 45.99	1.8803	2 47 33.9	10.305
12	23 43 51.69	1.9667	5 25 18.1	10.436	12	1 15 38.79	1.8798	2 57 51.7	10.288
13	23 45 49.60	1.9635	5 14 51.6	10.448	13	1 17 31.56	1.8793	3 8 8.4	10.270
14	23 47 47.31	1.9603	5 4 24.3	10.461	14	1 19 24.31	1.8790	3 18 24.1	10.252
15	23 49 44.84	1.9573	4 53 56.3	10.472	15	1 21 17.04	1.8787	3 28 38.7	10.233
16	23 51 42.19	1.9543	4 43 27.7	10.482	16	1 23 9.75	1.8783	3 38 52.1	10.213
17	23 53 39.36	1.9514	4 32 58.5	10.491	17	1 25 2.44	1.8781	3 49 4.3	10.193
18	23 55 36.36	1.9485	4 22 28.8	10.499	18	1 26 55.12	1.8779	3 59 15.3	10.173
19	23 57 33.18	1.9457	4 11 58.6	10.508	19	1 28 47.79	1.8778	4 9 25.0	10.151
20	23 59 29.84	1.9429	4 1 27.9	10.516	20	1 30 40.45	1.8778	4 19 33.4	10.129
21	0 1 26.33	1.9402	3 50 56.7	10.523	21	1 32 33.12	1.8778	4 29 40.5	10.108
22	0 3 22.66	1.9376	3 40 25.2	10.528	22	1 34 25.78	1.8777	4 39 46.3	10.085
23	0 5 18.84	1.9350	S. 3 29 53.4	10.533	23	1 36 18.44	1.8778	N. 4 49 50.7	10.061
	THURSDAY 14.					SATURDAY 16.			
0	0 7 14.86	1.9324	S. 3 19 21.2	10.538	0	1 38 11.11	1.8779	N. 4 59 53.6	10.037
1	0 9 10.73	1.9300	3 8 48.8	10.542	1	1 40 3.79	1.8781	5 9 55.1	10.013
2	0 11 6.46	1.9276	2 58 16.2	10.545	2	1 41 56.48	1.8783	5 19 55.1	9.988
3	0 13 2.04	1.9252	2 47 43.4	10.548	3	1 43 49.18	1.8786	5 29 53.6	9.963
4	0 14 57.48	1.9228	2 37 10.5	10.549	4	1 45 41.91	1.8789	5 39 50.6	9.937
5	0 16 52.78	1.9207	2 26 37.5	10.551	5	1 47 34.65	1.8792	5 49 46.0	9.909
6	0 18 47.96	1.9185	2 16 4.4	10.552	6	1 49 27.41	1.8796	5 59 39.7	9.882
7	0 20 43.00	1.9163	2 5 31.3	10.552	7	1 51 20.20	1.8801	6 9 31.8	9.854
8	0 22 37.92	1.9143	1 54 58.2	10.552	8	1 53 13.02	1.8806	6 19 22.2	9.826
9	0 24 32.72	1.9123	1 44 25.1	10.551	9	1 55 5.87	1.8812	6 29 10.9	9.797
10	0 26 27.40	1.9104	1 33 52.1	10.548	10	1 56 58.76	1.8818	6 38 57.9	9.768
11	0 28 21.97	1.9085	1 23 19.3	10.545	11	1 58 51.69	1.8824	6 48 43.1	9.738
12	0 30 16.42	1.9067	1 12 46.7	10.542	12	2 0 44.65	1.8831	6 58 26.4	9.707
13	0 32 10.77	1.9049	1 2 14.3	10.538	13	2 2 37.66	1.8838	7 8 7.9	9.676
14	0 34 5.01	1.9032	0 51 42.1	10.534	14	2 4 30.71	1.8846	7 17 47.5	9.645
15	0 35 59.15	1.9015	0 41 10.2	10.529	15	2 6 23.81	1.8854	7 27 25.3	9.613
16	0 37 53.19	1.8999	0 30 38.6	10.523	16	2 8 16.96	1.8863	7 37 1.1	9.579
17	0 39 47.14	1.8984	0 20 7.4	10.518	17	2 10 10.16	1.8872	7 46 34.8	9.546
18	0 41 41.00	1.8969	S. 0 9 36.5	10.511	18	2 12 3.42	1.8882	7 56 6.6	9.513
19	0 43 34.77	1.8954	N. 0 0 53.9	10.503	19	2 13 56.74	1.8892	8 5 36.3	9.478
20	0 45 28.45	1.8941	0 11 23.9	10.496	20	2 15 50.12	1.8902	8 15 4.0	9.443
21	0 47 22.06	1.8928	0 21 53.4	10.487	21	2 17 43.56	1.8913	8 24 29.5	9.408
22	0 49 15.59	1.8915	0 32 22.3	10.477	22	2 19 37.07	1.8923	8 33 52.9	9.372
23	0 51 9.04	1.8903	0 42 50.6	10.468	23	2 21 30.64	1.8935	8 43 14.1	9.335
24	0 53 2.43	1.8893	N. 0 53 18.4	10.458	24	2 23 24.29	1.8948	N. 8 52 33.1	9.298

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 17.					TUESDAY 19.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	2 23 24.29	1.8948	N. 8 52 33.1	9.298	0	3 56 23.15	1.9899	N.15 25 15.6	6.844
1	2 25 18.01	1.8960	9 1 49.8	9.260	1	3 58 22.62	1.9924	15 32 4.3	6.778
2	2 27 11.81	1.8973	9 11 4.3	9.222	2	4 0 22.24	1.9950	15 38 49.0	6.713
3	2 29 5.68	1.8986	9 20 16.5	9.183	3	4 2 22.02	1.9976	15 45 29.8	6.647
4	2 30 59.64	1.9000	9 29 26.3	9.143	4	4 4 21.95	2.0001	15 52 6.6	6.579
5	2 32 53.68	1.9013	9 38 33.7	9.103	5	4 6 22.03	2.0026	15 58 39.3	6.512
6	2 34 47.80	1.9028	9 47 38.7	9.063	6	4 8 22.26	2.0052	16 5 8.0	6.444
7	2 36 42.01	1.9043	9 56 41.3	9.022	7	4 10 22.65	2.0078	16 11 32.6	6.375
8	2 38 36.31	1.9058	10 5 41.4	8.980	8	4 12 23.19	2.0103	16 17 53.0	6.306
9	2 40 30.70	1.9073	10 14 38.9	8.938	9	4 14 23.89	2.0129	16 24 9.3	6.236
10	2 42 25.18	1.9089	10 23 33.9	8.896	10	4 16 24.74	2.0155	16 30 21.3	6.165
11	2 44 19.77	1.9106	10 32 26.4	8.853	11	4 18 25.75	2.0182	16 36 29.1	6.094
12	2 46 14.45	1.9122	10 41 16.2	8.808	12	4 20 26.92	2.0208	16 42 32.6	6.023
13	2 48 9.23	1.9138	10 50 3.3	8.763	13	4 22 28.24	2.0233	16 48 31.8	5.951
14	2 50 4.11	1.9156	10 58 47.8	8.719	14	4 24 29.72	2.0260	16 54 26.7	5.878
15	2 51 59.10	1.9173	11 7 29.6	8.673	15	4 26 31.36	2.0286	17 0 17.2	5.804
16	2 53 54.19	1.9191	11 16 8.6	8.627	16	4 28 33.15	2.0312	17 6 3.2	5.731
17	2 55 49.39	1.9209	11 24 44.8	8.580	17	4 30 35.10	2.0338	17 11 44.9	5.657
18	2 57 44.70	1.9228	11 33 18.2	8.533	18	4 32 37.20	2.0363	17 17 22.0	5.581
19	2 59 40.12	1.9247	11 41 48.7	8.484	19	4 34 39.46	2.0390	17 22 54.6	5.506
20	3 1 35.66	1.9266	11 50 16.3	8.436	20	4 36 41.88	2.0416	17 28 22.7	5.430
21	3 3 31.31	1.9285	11 58 41.0	8.388	21	4 38 44.45	2.0441	17 33 46.2	5.353
22	3 5 27.08	1.9304	12 7 2.8	8.338	22	4 40 47.17	2.0467	17 39 5.1	5.276
23	3 7 22.96	1.9324	N.12 15 21.6	8.288	23	4 42 50.05	2.0493	N.17 44 19.3	5.198
	MONDAY 18.					WEDNESDAY 20.			
0	3 9 18.97	1.9345	N.12 23 37.3	8.237	0	4 44 53.09	2.0519	N.17 49 28.9	5.121
1	3 11 15.10	1.9365	12 31 50.0	8.185	1	4 46 56.28	2.0544	17 54 33.8	5.042
2	3 13 11.35	1.9386	12 39 59.5	8.133	2	4 48 59.62	2.0570	17 59 33.9	4.962
3	3 15 7.73	1.9408	12 48 5.9	8.081	3	4 51 3.12	2.0597	18 4 29.2	4.882
4	3 17 4.24	1.9428	12 56 9.2	8.028	4	4 53 6.78	2.0622	18 9 19.7	4.802
5	3 19 0.87	1.9449	13 4 9.3	7.974	5	4 55 10.58	2.0647	18 14 5.4	4.722
6	3 20 57.63	1.9472	13 12 6.1	7.920	6	4 57 14.54	2.0672	18 18 46.3	4.640
7	3 22 54.54	1.9495	13 19 59.7	7.866	7	4 59 18.64	2.0697	18 23 22.2	4.558
8	3 24 51.57	1.9516	13 27 50.0	7.810	8	5 1 22.90	2.0722	18 27 53.2	4.476
9	3 26 48.73	1.9538	13 35 36.9	7.753	9	5 3 27.30	2.0747	18 32 19.3	4.393
10	3 28 46.03	1.9562	13 43 20.4	7.697	10	5 5 31.86	2.0772	18 36 40.3	4.309
11	3 30 43.47	1.9585	13 51 0.5	7.640	11	5 7 36.56	2.0796	18 40 56.4	4.226
12	3 32 41.05	1.9608	13 58 37.2	7.583	12	5 9 41.41	2.0821	18 45 7.4	4.141
13	3 34 38.76	1.9630	14 6 10.4	7.524	13	5 11 46.41	2.0845	18 49 13.3	4.056
14	3 36 36.61	1.9654	14 13 40.1	7.465	14	5 13 51.55	2.0868	18 53 14.1	3.971
15	3 38 34.61	1.9678	14 21 6.2	7.405	15	5 15 56.83	2.0893	18 57 9.8	3.885
16	3 40 32.75	1.9702	14 28 28.7	7.345	16	5 18 2.26	2.0917	19 1 0.3	3.799
17	3 42 31.03	1.9726	14 35 47.6	7.285	17	5 20 7.83	2.0939	19 4 45.7	3.712
18	3 44 29.46	1.9751	14 43 2.9	7.223	18	5 22 13.53	2.0963	19 8 25.8	3.624
19	3 46 28.04	1.9775	14 50 14.4	7.161	19	5 24 19.38	2.0987	19 12 0.6	3.537
20	3 48 26.76	1.9800	14 57 22.2	7.099	20	5 26 25.37	2.1009	19 15 30.2	3.449
21	3 50 25.64	1.9825	15 4 26.3	7.037	21	5 28 31.49	2.1031	19 18 54.5	3.361
22	3 52 24.66	1.9849	15 11 26.6	6.973	22	5 30 37.74	2.1053	19 22 13.5	3.272
23	3 54 23.83	1.9874	15 18 23.0	6.908	23	5 32 44.13	2.1076	19 25 27.1	3.182
24	3 56 23.15	1.9899	N.15 25 15.6	6.844	24	5 34 50.65	2.1098	N.19 28 35.3	3.093

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 21.					SATURDAY 23.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	5 34 50.65	2.1098	N.19 28 35.3	3.093	0	7 18 2.28	2.1760	N.20 7 16.4	1.567
1	5 36 57.30	2.1120	19 31 38.2	3.003	1	7 20 12.85	2.1764	20 5 39.4	1.668
2	5 39 4.09	2.1142	19 34 35.6	2.911	2	7 22 23.45	2.1768	20 3 56.3	1.768
3	5 41 11.00	2.1162	19 37 27.5	2.820	3	7 24 34.07	2.1771	20 2 7.2	1.868
4	5 43 18.03	2.1183	19 40 14.0	2.729	4	7 26 44.70	2.1774	20 0 12.1	1.969
5	5 45 25.19	2.1203	19 42 55.0	2.637	5	7 28 55.36	2.1778	19 58 10.9	2.070
6	5 47 32.47	2.1224	19 45 30.4	2.544	6	7 31 6.03	2.1780	19 56 3.7	2.170
7	5 49 39.88	2.1244	19 48 0.3	2.452	7	7 33 16.72	2.1783	19 53 50.5	2.271
8	5 51 47.40	2.1263	19 50 24.7	2.359	8	7 35 27.42	2.1784	19 51 31.2	2.372
9	5 53 55.04	2.1283	19 52 43.4	2.266	9	7 37 38.13	2.1785	19 49 5.9	2.472
10	5 56 2.79	2.1302	19 54 56.6	2.173	10	7 39 48.84	2.1786	19 46 34.6	2.572
11	5 58 10.66	2.1321	19 57 4.1	2.078	11	7 41 59.56	2.1787	19 43 57.3	2.672
12	6 0 18.64	2.1339	19 59 5.9	1.983	12	7 44 10.28	2.1787	19 41 14.0	2.772
13	6 2 26.73	2.1358	20 1 2.1	1.889	13	7 46 21.00	2.1787	19 38 24.7	2.872
14	6 4 34.93	2.1376	20 2 52.6	1.794	14	7 48 31.72	2.1787	19 35 29.4	2.971
15	6 6 43.24	2.1393	20 4 37.4	1.698	15	7 50 42.44	2.1786	19 32 28.2	3.070
16	6 8 51.65	2.1410	20 6 16.4	1.603	16	7 52 53.15	2.1784	19 29 21.0	3.170
17	6 11 0.16	2.1427	20 7 49.7	1.507	17	7 55 3.85	2.1783	19 26 7.8	3.269
18	6 13 8.77	2.1443	20 9 17.2	1.411	18	7 57 14.54	2.1781	19 22 48.7	3.368
19	6 15 17.48	2.1459	20 10 39.0	1.315	19	7 59 25.22	2.1779	19 19 23.6	3.467
20	6 17 26.28	2.1474	20 11 55.0	1.218	20	8 1 35.89	2.1777	19 15 52.7	3.565
21	6 19 35.17	2.1490	20 13 5.1	1.120	21	8 3 46.54	2.1773	19 12 15.8	3.664
22	6 21 44.16	2.1506	20 14 9.4	1.023	22	8 5 57.17	2.1771	19 8 33.0	3.763
23	6 23 53.24	2.1520	N.20 15 7.9	0.926	23	8 8 7.79	2.1767	N.19 4 44.3	3.861
	FRIDAY 22.					SUNDAY 24.			
0	6 26 2.40	2.1534	N.20 16 0.5	0.828	0	8 10 18.38	2.1763	N.19 0 49.7	3.958
1	6 28 11.65	2.1548	20 16 47.2	0.730	1	8 12 28.95	2.1759	18 56 49.3	4.056
2	6 30 20.98	2.1562	20 17 28.1	0.632	2	8 14 39.49	2.1755	18 52 43.0	4.153
3	6 32 30.39	2.1574	20 18 3.0	0.533	3	8 16 50.01	2.1751	18 48 30.9	4.250
4	6 34 39.87	2.1587	20 18 32.0	0.434	4	8 19 0.50	2.1746	18 44 13.0	4.347
5	6 36 49.43	2.1600	20 18 55.1	0.336	5	8 21 10.96	2.1740	18 39 49.3	4.443
6	6 38 59.07	2.1612	20 19 12.3	0.237	6	8 23 21.38	2.1735	18 35 19.8	4.539
7	6 41 8.78	2.1623	20 19 23.5	0.137	7	8 25 31.78	2.1730	18 30 44.6	4.635
8	6 43 18.55	2.1634	20 19 28.7	0.038	8	8 27 42.14	2.1723	18 26 3.6	4.731
9	6 45 28.39	2.1645	20 19 28.0	0.062	9	8 29 52.46	2.1718	18 21 16.9	4.826
10	6 47 38.29	2.1656	20 19 21.3	0.162	10	8 32 2.75	2.1711	18 16 24.5	4.921
11	6 49 48.26	2.1666	20 19 8.6	0.262	11	8 34 12.99	2.1704	18 11 26.4	5.016
12	6 51 58.28	2.1675	20 18 49.9	0.362	12	8 36 23.20	2.1698	18 6 22.6	5.110
13	6 54 8.36	2.1685	20 18 25.2	0.461	13	8 38 33.37	2.1691	18 1 13.2	5.204
14	6 56 18.50	2.1693	20 17 54.6	0.561	14	8 40 43.49	2.1683	17 55 58.1	5.298
15	6 58 28.68	2.1702	20 17 17.9	0.662	15	8 42 53.57	2.1676	17 50 37.5	5.390
16	7 0 38.92	2.1710	20 16 35.1	0.762	16	8 45 3.60	2.1668	17 45 11.3	5.483
17	7 2 49.20	2.1717	20 15 46.4	0.862	17	8 47 13.59	2.1661	17 39 39.5	5.576
18	7 4 59.52	2.1724	20 14 51.7	0.962	18	8 49 23.53	2.1653	17 34 2.2	5.668
19	7 7 9.89	2.1732	20 13 50.9	1.063	19	8 51 33.43	2.1645	17 28 19.3	5.760
20	7 9 20.30	2.1738	20 12 44.1	1.164	20	8 53 43.27	2.1636	17 22 31.0	5.851
21	7 11 30.74	2.1743	20 11 31.2	1.265	21	8 55 53.06	2.1628	17 16 37.2	5.942
22	7 13 41.22	2.1749	20 10 12.3	1.365	22	8 58 2.80	2.1619	17 10 38.0	6.033
23	7 15 51.73	2.1755	20 8 47.4	1.466	23	9 0 12.49	2.1611	17 4 33.3	6.123
24	7 18 2.28	2.1760	N.20 7 16.4	1.567	24	9 2 22.13	2.1603	N.16 58 23.3	6.212

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 25.					WEDNESDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	9 2 22.13	2.1603	N.16 58 23.3	6.212	0	10 45 1.82	2.1213	N.10 26 53.6	9.872
1	9 4 31.72	2.1593	16 52 7.9	6.301	1	10 47 9.09	2.1209	10 16 59.5	9.933
2	9 6 41.25	2.1583	16 45 47.2	6.390	2	10 49 16.33	2.1205	10 7 1.7	9.993
3	9 8 50.72	2.1574	16 39 21.1	6.478	3	10 51 23.55	2.1202	9 57 0.3	10.053
4	9 11 0.14	2.1566	16 32 49.8	6.565	4	10 53 30.75	2.1199	9 46 55.4	10.111
5	9 13 9.51	2.1557	16 26 13.3	6.653	5	10 55 37.94	2.1197	9 36 47.0	10.168
6	9 15 18.82	2.1548	16 19 31.5	6.740	6	10 57 45.11	2.1193	9 26 35.2	10.225
7	9 17 28.08	2.1538	16 12 44.5	6.826	7	10 59 52.26	2.1192	9 16 20.0	10.282
8	9 19 37.28	2.1528	16 5 52.4	6.912	8	11 1 59.41	2.1191	9 6 1.4	10.337
9	9 21 46.42	2.1518	15 58 55.1	6.998	9	11 4 6.55	2.1189	8 55 39.6	10.391
10	9 23 55.50	2.1509	15 51 52.7	7.083	10	11 6 13.68	2.1188	8 45 14.5	10.445
11	9 26 4.53	2.1500	15 44 45.2	7.167	11	11 8 20.81	2.1188	8 34 46.2	10.498
12	9 28 13.50	2.1490	15 37 32.7	7.250	12	11 10 27.93	2.1188	8 24 14.7	10.551
13	9 30 22.41	2.1481	15 30 15.2	7.333	13	11 12 35.06	2.1188	8 13 40.1	10.602
14	9 32 31.27	2.1472	15 22 52.7	7.417	14	11 14 42.19	2.1188	8 3 2.5	10.653
15	9 34 40.07	2.1462	15 15 25.2	7.499	15	11 16 49.32	2.1189	7 52 21.8	10.703
16	9 36 48.81	2.1453	15 7 52.8	7.580	16	11 18 56.46	2.1191	7 41 38.1	10.753
17	9 38 57.50	2.1443	15 0 15.6	7.661	17	11 21 3.61	2.1193	7 30 51.5	10.801
18	9 41 6.13	2.1433	14 52 33.5	7.743	18	11 23 10.77	2.1195	7 20 2.0	10.848
19	9 43 14.70	2.1423	14 44 46.5	7.823	19	11 25 17.95	2.1198	7 9 9.7	10.895
20	9 45 23.21	2.1414	14 36 54.8	7.902	20	11 27 25.15	2.1202	6 58 14.6	10.942
21	9 47 31.67	2.1406	14 28 58.3	7.980	21	11 29 32.37	2.1205	6 47 16.7	10.987
22	9 49 40.08	2.1397	14 20 57.2	8.058	22	11 31 39.61	2.1208	6 36 16.2	11.031
23	9 51 48.43	2.1387	N.14 12 51.3	8.137	23	11 33 46.87	2.1213	N. 6 25 13.0	11.074
	TUESDAY 26.					THURSDAY 28.			
0	9 53 56.72	2.1378	N.14 4 40.8	8.213	0	11 35 54.16	2.1218	N. 6 14 7.3	11.117
1	9 56 4.96	2.1369	13 56 25.7	8.290	1	11 38 1.48	2.1223	6 2 59.0	11.158
2	9 58 13.15	2.1361	13 48 6.0	8.366	2	11 40 8.84	2.1229	5 51 48.3	11.199
3	10 0 21.29	2.1352	13 39 41.8	8.441	3	11 42 16.23	2.1235	5 40 35.1	11.240
4	10 2 29.37	2.1343	13 31 13.1	8.515	4	11 44 23.66	2.1242	5 29 19.5	11.279
5	10 4 37.40	2.1334	13 22 40.0	8.589	5	11 46 31.13	2.1249	5 18 1.6	11.318
6	10 6 45.38	2.1327	13 14 2.4	8.663	6	11 48 38.65	2.1257	5 6 41.4	11.355
7	10 8 53.32	2.1318	13 5 20.4	8.736	7	11 50 46.21	2.1264	4 55 19.0	11.392
8	10 11 1.20	2.1310	12 56 34.1	8.808	8	11 52 53.82	2.1273	4 43 54.4	11.428
9	10 13 9.04	2.1303	12 47 43.5	8.879	9	11 55 1.49	2.1283	4 32 27.7	11.462
10	10 15 16.84	2.1296	12 38 48.6	8.950	10	11 57 9.21	2.1292	4 20 58.9	11.497
11	10 17 24.59	2.1288	12 29 49.5	9.021	11	11 59 16.99	2.1302	4 9 28.1	11.530
12	10 19 32.29	2.1280	12 20 46.1	9.091	12	12 1 24.83	2.1313	3 57 55.3	11.562
13	10 21 39.95	2.1273	12 11 38.6	9.159	13	12 3 32.74	2.1323	3 46 20.6	11.593
14	10 23 47.57	2.1268	12 2 27.0	9.227	14	12 5 40.71	2.1335	3 34 44.1	11.623
15	10 25 55.16	2.1261	11 53 11.4	9.294	15	12 7 48.76	2.1348	3 23 5.8	11.653
16	10 28 2.70	2.1253	11 43 51.7	9.362	16	12 9 56.88	2.1359	3 11 25.8	11.681
17	10 30 10.20	2.1248	11 34 28.0	9.428	17	12 12 5.07	2.1373	2 59 44.1	11.708
18	10 32 17.67	2.1243	11 25 0.3	9.494	18	12 14 13.35	2.1387	2 48 0.8	11.736
19	10 34 25.11	2.1237	11 15 28.7	9.558	19	12 16 21.71	2.1401	2 36 15.8	11.762
20	10 36 32.51	2.1231	11 5 53.3	9.623	20	12 18 30.16	2.1415	2 24 29.4	11.785
21	10 38 39.88	2.1226	10 56 14.0	9.687	21	12 20 38.69	2.1430	2 12 41.6	11.809
22	10 40 47.22	2.1221	10 46 30.9	9.749	22	12 22 47.32	2.1447	2 0 52.3	11.833
23	10 42 54.53	2.1217	10 36 44.1	9.811	23	12 24 56.05	2.1463	1 49 1.7	11.854
24	10 45 1.82	2.1213	N.10 26 53.6	9.872	24	12 27 4.87	2.1479	N. 1 37 9.8	11.875

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

FRIDAY 29.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ' "	"
0	12 27 4.87	2.1479	N. 1 37 9.8	11.875
1	12 29 13.80	2.1497	1 25 16.7	11.894
2	12 31 22.83	2.1514	1 13 22.5	11.913
3	12 33 31.97	2.1533	1 1 27.1	11.932
4	12 35 41.23	2.1553	0 49 30.7	11.948
5	12 37 50.60	2.1571	0 37 33.4	11.963
6	12 40 0.08	2.1591	0 25 35.1	11.978
7	12 42 9.69	2.1613	0 13 36.0	11.992
8	12 44 19.43	2.1634	N. 0 1 36.1	12.005
9	12 46 29.30	2.1655	S. 0 10 24.6	12.017
10	12 48 39.29	2.1677	0 22 25.9	12.027
11	12 50 49.42	2.1700	0 34 27.8	12.036
12	12 52 59.69	2.1723	0 46 30.2	12.044
13	12 55 10.10	2.1748	0 58 33.1	12.052
14	12 57 20.66	2.1772	1 10 36.4	12.058
15	12 59 31.36	2.1797	1 22 40.0	12.063
16	13 1 42.22	2.1823	1 34 43.9	12.067
17	13 3 53.24	2.1849	1 46 48.0	12.070
18	13 6 4.41	2.1875	1 58 52.3	12.072
19	13 8 15.74	2.1902	2 10 56.6	12.072
20	13 10 27.23	2.1930	2 23 0.9	12.071
21	13 12 38.90	2.1958	2 35 5.1	12.070
22	13 14 50.73	2.1987	2 47 9.3	12.068
23	13 17 2.74	2.2017	S. 2 59 13.2	12.063

SATURDAY 30.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	13 19 14.93	2.2047	S. 3 11 16.8	12.058
1	13 21 27.30	2.2077	3 23 20.1	12.052
2	13 23 39.85	2.2108	3 35 23.0	12.043
3	13 25 52.59	2.2139	3 47 25.3	12.034
4	13 28 5.52	2.2172	3 59 27.1	12.025
5	13 30 18.65	2.2204	4 11 28.3	12.013
6	13 32 31.97	2.2237	4 23 28.7	12.001
7	13 34 45.49	2.2271	4 35 28.4	11.988
8	13 36 59.22	2.2305	4 47 27.2	11.973
9	13 39 13.15	2.2339	4 59 25.1	11.957
10	13 41 27.29	2.2374	5 11 22.0	11.939
11	13 43 41.64	2.2409	5 23 17.8	11.920
12	13 45 56.20	2.2445	5 35 12.4	11.900
13	13 48 10.98	2.2483	5 47 5.8	11.878
14	13 50 25.99	2.2520	5 58 57.8	11.856
15	13 52 41.22	2.2557	6 10 48.5	11.833
16	13 54 56.67	2.2595	6 22 37.7	11.807
17	13 57 12.36	2.2634	6 34 25.3	11.780
18	13 59 28.28	2.2673	6 46 11.3	11.753
19	14 1 44.43	2.2712	6 57 55.6	11.723
20	14 4 0.82	2.2752	7 9 38.1	11.693
21	14 6 17.45	2.2793	7 21 18.7	11.661
22	14 8 34.33	2.2833	7 32 57.4	11.628
23	14 10 51.45	2.2874	7 44 34.1	11.593
24	14 13 8.82	2.2916	S. 7 56 8.6	11.557

SUNDAY, JULY 1.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ' "	"
0	14 13 8.82	2.2916	S. 7 56 8.6	11.557

PHASES OF THE MOON.

			d	h	m
○	Full Moon	June	6	9	11.7
☾	Last Quarter		13	7	34.4
●	New Moon		21	11	5.6
☽	First Quarter		29	2	18.9

			d	h
☾	Perigee	June	5	17.2
☾	Apogee		18	10.2

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	105 29 30	2717	107 5 48	2699	108 42 30	2681	110 19 35	2663
	Venus	W.	78 34 30	2801	80 8 57	2782	81 43 48	2764	83 19 3	2746
	Pollux	W.	63 28 7	2450	65 10 31	2431	66 53 21	2413	68 36 37	2395
	Regulus	W.	27 11 49	2392	28 55 35	2374	30 39 47	2358	32 24 22	2341
	Spica	E.	27 29 0	2546	25 48 50	2549	24 8 45	2558	22 28 53	2574
	Antares	E.	73 14 34	2452	71 32 13	2436	69 49 29	2420	68 6 23	2405
2	Sun	W.	118 30 58	2577	120 10 24	2561	121 50 13	2545	123 30 24	2528
	Venus	W.	91 21 23	2655	92 59 3	2638	94 37 6	2621	96 15 33	2604
	Pollux	W.	77 19 20	2308	79 5 8	2292	80 51 19	2275	82 37 55	2260
	Regulus	W.	41 13 24	2259	43 0 24	2243	44 47 48	2227	46 35 36	2212
	Antares	E.	59 25 39	2335	57 40 31	2322	55 55 3	2310	54 9 18	2298
	α Aquilæ	E.	105 52 26	2844	104 18 55	2819	102 44 51	2795	101 10 16	2773
3	Pollux	W.	91 36 32	2186	93 25 20	2174	95 14 27	2161	97 3 54	2149
	Regulus	W.	55 40 12	2139	57 30 12	2125	59 20 33	2113	61 11 13	2100
	Antares	E.	45 16 42	2254	43 29 34	2248	41 42 18	2245	39 54 57	2243
	α Aquilæ	E.	93 10 36	2680	91 33 30	2666	89 56 4	2654	88 18 22	2642
4	Regulus	W.	70 29 9	2045	72 21 34	2036	74 14 12	2027	76 7 5	2019
	Spica	W.	17 53 25	2359	19 37 59	2297	21 24 3	2248	23 11 20	2208
	Antares	E.	30 58 43	2275	29 12 7	2294	27 25 59	2321	25 40 30	2356
	α Aquilæ	E.	80 6 38	2608	78 27 54	2607	76 49 8	2607	75 10 23	2609
5	Regulus	W.	85 34 14	1989	87 28 6	1986	89 22 3	1982	91 16 6	1980
	Spica	W.	32 19 31	2092	34 10 43	2078	36 2 16	2067	37 54 6	2057
	α Aquilæ	E.	66 58 21	2655	65 20 40	2672	63 43 22	2691	62 6 30	2715
	Fomalhaut	E.	99 38 18	2249	97 51 3	2243	96 3 39	2237	94 16 7	2234
	Saturn	E.	110 37 24	1998	108 43 47	1995	106 50 5	1992	104 56 18	1989
6	Spica	W.	47 16 3	2035	49 8 43	2034	51 1 25	2034	52 54 6	2036
	α Aquilæ	E.	54 11 36	2891	52 39 6	2941	51 7 39	2998	49 37 24	3061
	Fomalhaut	E.	85 17 46	2235	83 30 11	2239	81 42 42	2245	79 55 22	2252
	Saturn	E.	95 26 50	1989	93 32 58	1992	91 39 11	1994	89 45 27	1998
	α Pegasi	E.	100 28 45	2334	98 43 36	2333	96 58 25	2334	95 13 15	2336
7	Spica	W.	62 16 26	2058	64 8 30	2065	66 0 24	2073	67 52 5	2081
	Antares	W.	18 8 47	2615	19 47 22	2524	21 28 2	2456	23 10 17	2406
	Fomalhaut	E.	71 1 53	2307	69 16 4	2323	67 30 38	2340	65 45 37	2359
	Saturn	E.	80 18 46	2028	78 25 56	2037	76 33 19	2046	74 40 57	2055
	α Pegasi	E.	86 28 47	2367	84 44 25	2377	83 0 17	2389	81 16 26	2403
8	Spica	W.	77 6 47	2137	78 56 50	2149	80 46 35	2163	82 35 58	2177
	Antares	W.	31 54 13	2300	33 40 12	2296	35 26 17	2294	37 12 25	2296
	Fomalhaut	E.	57 8 6	2480	55 26 24	2510	53 45 25	2543	52 5 12	2578
	Saturn	E.	65 23 8	2113	63 32 29	2127	61 42 11	2141	59 52 14	2155
	α Pegasi	E.	72 42 39	2491	71 1 13	2512	69 20 17	2536	67 39 54	2561

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV$^{\text{h}}$	P. L. of Diff.	XVIII$^{\text{h}}$	P. L. of Diff.	XXI$^{\text{h}}$	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	111 57 5	2646	113 34 58	2629	115 13 14	2611	116 51 54	2593
	Venus	W.	84 54 42	2727	86 30 46	2709	88 7 14	2690	89 44 7	2673
	Pollux	W.	70 20 19	2377	72 4 27	2360	73 49 0	2343	75 33 57	2325
	Regulus	W.	34 9 22	2324	35 54 46	2308	37 40 34	2291	39 26 47	2275
	Spica	E.	20 49 22	2599	19 10 25	2635	17 32 18	2688	15 55 22	2773
	Antares	E.	66 22 56	2391	64 39 8	2376	62 54 59	2362	61 10 29	2348
2	Sun	W.	125 10 58	2513	126 51 53	2498	128 33 9	2483	130 14 46	2469
	Venus	W.	97 54 23	2587	99 33 36	2571	101 13 11	2555	102 53 8	2540
	Pollux	W.	84 24 53	2244	86 12 15	2229	87 59 59	2215	89 48 5	2200
	Regulus	W.	48 23 46	2196	50 12 20	2182	52 1 15	2167	53 50 33	2153
	Antares	E.	52 23 16	2287	50 36 58	2277	48 50 25	2268	47 3 39	2261
	a Aquilæ	E.	99 35 12	2752	97 59 41	2732	96 23 43	2714	94 47 21	2696
3	Pollux	W.	98 53 39	2137	100 43 42	2126	102 34 1	2116	104 24 36	2106
	Regulus	W.	63 2 13	2088	64 53 31	2076	66 45 7	2065	68 37 0	2055
	Antares	E.	38 7 33	2243	36 20 9	2246	34 32 50	2252	32 45 39	2262
	a Aquilæ	E.	86 40 24	2632	85 2 12	2624	83 23 49	2617	81 45 17	2612
4	Regulus	W.	78 0 10	2012	79 53 26	2005	81 46 53	1999	83 40 29	1993
	Spica	W.	24 59 36	2176	26 48 40	2149	28 38 25	2126	30 28 44	2108
	Antares	E.	23 55 52	2403	22 12 21	2465	20 30 19	2549	18 50 14	2661
	a Aquilæ	E.	73 31 40	2614	71 53 4	2620	70 14 36	2629	68 36 21	2641
5	Regulus	W.	93 10 12	1978	95 4 21	1977	96 58 31	1977	98 52 41	1978
	Spica	W.	39 46 11	2050	41 38 27	2044	43 30 52	2039	45 23 25	2036
	a Aquilæ	E.	60 30 10	2742	58 54 26	2772	57 19 22	2807	55 45 3	2847
	Fomalhaut	E.	92 28 30	2231	90 40 49	2231	88 53 7	2231	87 5 25	2233
	Saturn	E.	103 2 27	1988	101 8 34	1987	99 14 39	1987	97 20 44	1988
6	Spica	W.	54 46 44	2038	56 39 19	2041	58 31 49	2046	60 24 12	2052
	a Aquilæ	E.	48 8 27	3132	46 40 57	3212	45 15 2	3301	43 50 52	3402
	Fomalhaut	E.	78 8 11	2260	76 21 13	2270	74 34 29	2281	72 48 2	2294
	Saturn	E.	87 51 50	2003	85 58 20	2009	84 4 59	2014	82 11 47	2021
	a Pegasi	E.	93 28 8	2339	91 43 5	2344	89 58 10	2350	88 13 23	2357
7	Spica	W.	69 43 33	2091	71 34 46	2101	73 25 44	2112	75 16 24	2124
	Antares	W.	24 53 43	2369	26 38 2	2342	28 23 0	2322	30 8 27	2309
	Fomalhaut	E.	64 1 3	2379	62 16 58	2401	60 33 25	2426	58 50 27	2452
	Saturn	E.	72 48 49	2066	70 56 57	2077	69 5 22	2089	67 14 6	2101
	a Pegasi	E.	79 32 55	2417	77 49 44	2434	76 6 57	2451	74 24 35	2470
8	Spica	W.	84 25 0	2192	86 13 40	2207	88 1 58	2223	89 49 51	2239
	Antares	W.	38 58 31	2299	40 44 32	2304	42 30 25	2312	44 16 7	2321
	Fomalhaut	E.	50 25 47	2617	48 47 15	2658	47 9 38	2704	45 33 3	2752
	Saturn	E.	58 2 39	2170	56 13 26	2186	54 24 37	2201	52 36 11	2218
	a Pegasi	E.	66 0 6	2589	64 20 56	2617	62 42 24	2648	61 4 34	2680

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Spica	W.	91 37 21	2256	93 24 26	2272	95 11 6	2290	96 57 20	2308
	Antares	W.	46 1 36	2331	47 46 51	2342	49 31 50	2353	51 16 32	2367
	Fomalhaut	E.	43 57 32	2805	42 23 10	2864	40 50 5	2927	39 18 20	2998
	SATURN	E.	50 48 10	2234	49 0 33	2251	47 13 21	2268	45 26 35	2286
	α Pegasi	E.	59 27 27	2715	57 51 7	2751	56 15 35	2790	54 40 54	2832
	α Arietis	E.	101 45 32	2382	100 1 31	2397	98 17 52	2412	96 34 35	2429
10	Antares	W.	59 55 0	2441	61 37 36	2457	63 19 50	2474	65 1 39	2491
	SATURN	E.	36 39 17	2377	34 55 9	2396	33 11 28	2415	31 28 15	2434
	α Pegasi	E.	47 2 8	3087	45 33 42	3150	44 6 33	3219	42 40 46	3292
	α Arietis	E.	88 4 16	2519	86 23 29	2538	84 43 9	2558	83 3 17	2578
	SUN	E.	130 26 32	2697	128 49 48	2716	127 13 29	2735	125 37 36	2755
11	Antares	W.	73 24 48	2578	75 4 13	2596	76 43 13	2614	78 21 49	2632
	α Pegasi	E.	35 55 46	3784	34 40 27	3917	33 27 24	4065	32 16 48	4231
	α Arietis	E.	74 50 51	2682	73 13 47	2704	71 37 12	2726	70 1 7	2748
	SUN	E.	117 44 37	2853	116 11 18	2873	114 38 25	2892	113 5 56	2912
12	Antares	W.	86 28 50	2720	88 5 4	2737	89 40 55	2754	91 16 23	2770
	α Aquilæ	W.	45 30 35	3869	46 44 26	3823	47 59 5	3783	49 14 25	3748
	α Arietis	E.	62 8 2	2863	60 34 55	2887	59 2 19	2910	57 30 13	2935
	SUN	E.	105 29 41	3008	103 59 38	3026	102 29 57	3044	101 0 39	3062
13	α Aquilæ	W.	55 38 52	3630	56 56 54	3616	58 15 11	3604	59 33 41	3593
	α Arietis	E.	49 57 40	3066	48 28 49	3095	47 0 33	3124	45 32 52	3154
	SUN	E.	93 39 30	3147	92 12 17	3163	90 45 24	3179	89 18 50	3194
14	α Aquilæ	W.	66 8 33	3562	67 27 49	3559	68 47 8	3558	70 6 28	3556
	Fomalhaut	W.	32 6 19	3925	33 19 13	3857	34 33 16	3797	35 48 21	3746
	α Arietis	E.	38 24 17	3334	37 0 45	3378	35 38 3	3426	34 16 16	3478
	SUN	E.	82 10 19	3264	80 45 25	3277	79 20 47	3289	77 56 23	3301
15	α Aquilæ	W.	76 43 16	3560	78 2 34	3562	79 21 50	3565	80 41 3	3567
	Fomalhaut	W.	42 15 15	3572	43 34 20	3549	44 53 50	3528	46 13 43	3509
	α Pegasi	W.	31 7 48	4655	32 9 26	4525	33 12 56	4413	34 18 5	4315
	SATURN	W.	27 41 26	2994	29 11 46	3003	30 41 55	3010	32 11 55	3018
	SUN	E.	70 57 42	3354	69 34 33	3364	68 11 35	3373	66 48 48	3381
16	α Aquilæ	W.	87 16 15	3586	88 35 5	3591	89 53 49	3596	91 12 28	3600
	Fomalhaut	W.	52 57 33	3444	54 19 0	3435	55 40 37	3426	57 2 24	3417
	α Pegasi	W.	40 3 28	3969	41 15 38	3920	42 28 37	3877	43 42 20	3838
	SATURN	W.	39 39 46	3050	41 8 57	3054	42 38 3	3059	44 7 3	3064
	SUN	E.	59 57 4	3417	58 35 7	3423	57 13 17	3429	55 51 33	3433
17	Fomalhaut	W.	63 53 24	3386	65 15 57	3380	66 38 36	3376	68 1 20	3371
	SATURN	W.	51 30 52	3079	52 59 27	3082	54 27 59	3083	55 56 30	3085
	α Pegasi	W.	49 59 52	3689	51 16 51	3666	52 34 14	3645	53 52 0	3625
	SUN	E.	49 4 11	3454	47 42 55	3457	46 21 43	3459	45 0 33	3462

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	XVIII^{h}	P. L. of Diff.	XXI^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Spica	W.	98 43 8	2326	100 28 30	2344	102 13 25	2363	103 57 53	2382
	Antares	W.	53 0 54	2380	54 44 57	2394	56 28 40	2410	58 12 1	2425
	Fomalhaut	E.	37 48 5	3075	36 19 25	3162	34 52 31	3259	33 27 32	3369
	Saturn	E.	43 40 15	2303	41 54 20	2322	40 8 53	2340	38 23 51	2359
	α Pegasi	E.	53 7 8	2877	51 34 19	2924	50 2 30	2974	48 31 45	3029
	α Arietis	E.	94 51 42	2446	93 9 13	2464	91 27 9	2482	89 45 30	2500
10	Antares	W.	66 43 5	2508	68 24 8	2526	70 4 45	2543	71 44 59	2561
	Saturn	E.	29 45 28	2453	28 3 9	2472	26 21 16	2491	24 39 50	2510
	α Pegasi	E.	41 16 25	3373	39 53 38	3461	38 32 30	3558	37 13 10	3665
	α Arietis	E.	81 23 51	2599	79 44 54	2619	78 6 25	2640	76 28 24	2661
	Sun	E.	124 2 9	2775	122 27 8	2794	120 52 32	2814	119 18 22	2833
11	Antares	W.	80 0 1	2649	81 37 49	2667	83 15 13	2685	84 52 13	2702
	α Pegasi	E.	31 8 51	4421	30 3 49	4638	29 1 57	4885	28 3 30	5172
	α Arietis	E.	68 25 31	2770	66 50 24	2793	65 15 47	2816	63 41 40	2839
	Sun	E.	111 33 52	2931	110 2 13	2951	108 30 59	2970	107 0 8	2989
12	Antares	W.	92 51 30	2788	94 26 14	2804	96 0 37	2820	97 34 39	2836
	α Aquilæ	W.	50 30 22	3717	51 46 51	3691	53 3 48	3668	54 21 9	3648
	α Arietis	E.	55 58 38	2960	54 27 35	2985	52 57 4	3012	51 27 6	3038
	Sun	E.	99 31 43	3079	98 3 8	3097	96 34 55	3114	95 7 2	3131
13	α Aquilæ	W.	60 52 23	3584	62 11 15	3577	63 30 15	3570	64 49 22	3566
	α Arietis	E.	44 5 48	3187	42 39 23	3220	41 13 38	3256	39 48 35	3294
	Sun	E.	87 52 33	3209	86 26 34	3224	85 0 53	3237	83 35 28	3251
14	α Aquilæ	W.	71 25 50	3555	72 45 13	3556	74 4 35	3557	75 23 56	3558
	Fomalhaut	W.	37 4 20	3701	38 21 6	3662	39 38 34	3628	40 56 38	3598
	α Arietis	E.	32 55 27	3535	31 35 41	3598	30 17 4	3668	28 59 43	3748
	Sun	E.	76 32 13	3313	75 8 17	3324	73 44 33	3335	72 21 2	3345
15	α Aquilæ	W.	82 0 13	3570	83 19 20	3574	84 38 22	3577	85 57 21	3582
	Fomalhaut	W.	47 33 57	3494	48 54 28	3479	50 15 16	3466	51 36 18	3455
	α Pegasi	W.	35 24 44	4229	36 32 43	4152	37 41 55	4084	38 52 12	4024
	Saturn	W.	33 41 46	3025	35 11 28	3032	36 41 1	3038	38 10 27	3044
	Sun	E.	65 26 10	3389	64 3 41	3397	62 41 21	3404	61 19 9	3410
16	α Aquilæ	W.	92 31 2	3606	93 49 30	3612	95 7 52	3618	96 26 7	3623
	Fomalhaut	W.	58 24 21	3410	59 46 26	3403	61 8 39	3398	62 30 58	3392
	α Pegasi	W.	44 56 43	3803	46 11 42	3770	47 27 15	3740	48 43 20	3714
	Saturn	W.	45 35 57	3067	47 4 47	3071	48 33 32	3074	50 2 14	3077
	Sun	E.	54 29 54	3438	53 8 21	3443	51 46 53	3447	50 25 30	3451
17	Fomalhaut	W.	69 24 9	3366	70 47 4	3363	72 10 3	3359	73 33 7	3354
	Saturn	W.	57 24 58	3086	58 53 25	3087	60 21 51	3087	61 50 17	3087
	α Pegasi	W.	55 10 7	3608	56 28 33	3591	57 47 17	3575	59 6 19	3560
	Sun	E.	43 39 27	3464	42 18 23	3465	40 57 20	3468	39 36 20	3470

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	III^h	P. L. of Diff.	VI^h	P. L. of Diff.	IX^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
18	Fomalhaut	W.	74 56 16	3351	76 19 29	3347	77 42 46	3343	79 6 8	3339
	SATURN	W.	63 18 42	3087	64 47 8	3087	66 15 34	3086	67 44 1	3085
	α Pegasi	W.	60 25 37	3546	61 45 10	3534	63 4 57	3521	64 24 58	3509
	SUN	E.	38 15 22	3470	36 54 24	3472	35 33 28	3472	34 12 32	3473
19	Fomalhaut	W.	86 3 56	3323	87 27 41	3320	88 51 29	3317	90 15 21	3314
	SATURN	W.	75 6 41	3076	76 35 20	3074	78 4 2	3070	79 32 48	3068
	α Pegasi	W.	71 8 3	3460	72 29 12	3451	73 50 31	3442	75 12 0	3435
	SUN	E.	27 28 7	3477	26 7 17	3478	24 46 28	3480	23 25 42	3482
23	SUN	W.	17 19 33	3345	18 42 52	3325	20 6 35	3308	21 30 37	3292
	Regulus	E.	40 18 31	2910	38 46 25	2902	37 14 9	2896	35 41 45	2888
	Spica	E.	94 9 59	2940	92 38 31	2933	91 6 54	2926	89 35 8	2918
24	SUN	W.	28 35 1	3227	30 0 38	3215	31 26 30	3204	32 52 35	3193
	Regulus	E.	27 57 20	2851	26 23 58	2843	24 50 26	2835	23 16 44	2827
	Spica	E.	81 53 52	2880	80 21 8	2872	78 48 13	2864	77 15 8	2857
25	SUN	W.	40 6 19	3138	41 33 43	3126	43 1 21	3115	44 29 12	3104
	Pollux	W.	22 8 18	3115	23 36 10	3065	25 5 3	3023	26 34 47	2986
	Spica	E.	69 27 10	2816	67 53 3	2808	66 18 45	2799	64 44 15	2791
26	SUN	W.	51 51 52	3048	53 21 6	3036	54 50 34	3024	56 20 17	3012
	Pollux	W.	34 13 37	2850	35 47 0	2828	37 20 52	2808	38 55 10	2789
	VENUS	W.	18 52 42	3157	20 19 43	3140	21 47 4	3125	23 14 43	3110
	Spica	E.	56 49 4	2748	55 13 28	2740	53 37 42	2732	52 1 44	2723
	Antares	E.	102 42 45	2761	101 7 26	2750	99 31 52	2739	97 56 4	2728
27	SUN	W.	63 52 36	2951	65 23 51	2939	66 55 21	2926	68 27 7	2913
	Pollux	W.	46 52 35	2703	48 29 11	2687	50 6 8	2672	51 43 26	2657
	VENUS	W.	30 37 22	3039	32 6 46	3026	33 36 27	3013	35 6 24	2998
	Spica	E.	43 59 13	2684	42 22 12	2677	40 45 2	2671	39 7 43	2665
	Antares	E.	89 53 22	2672	88 16 4	2661	86 38 31	2649	85 0 43	2638
28	SUN	W.	76 10 8	2847	77 43 35	2833	79 17 20	2820	80 51 22	2806
	Pollux	W.	59 54 58	2583	61 34 16	2569	63 13 54	2554	64 53 52	2540
	VENUS	W.	42 40 34	2928	44 12 17	2914	45 44 18	2900	47 16 37	2886
	Regulus	W.	23 38 14	2525	25 18 53	2511	26 59 51	2499	28 41 6	2486
	Spica	E.	30 59 30	2650	29 21 43	2652	27 43 58	2657	26 6 20	2664
	Antares	E.	76 47 49	2580	75 8 27	2569	73 28 50	2557	71 48 56	2546
29	SUN	W.	88 46 5	2737	90 21 56	2723	91 58 6	2709	93 34 34	2695
	Pollux	W.	73 18 34	2470	75 0 30	2457	76 42 44	2443	78 25 18	2429
	VENUS	W.	55 2 47	2814	56 36 57	2799	58 11 26	2785	59 46 14	2771
	Regulus	W.	37 11 56	2421	38 55 1	2408	40 38 25	2394	42 22 8	2382
	Antares	E.	63 25 35	2491	61 44 9	2480	60 2 28	2470	58 20 33	2460
30	SUN	W.	101 41 37	2626	103 19 57	2612	104 58 36	2599	106 37 33	2585
	Pollux	W.	87 2 53	2363	88 47 21	2351	90 32 7	2338	92 17 11	2326
	VENUS	W.	67 44 56	2699	69 21 37	2685	70 58 37	2672	72 35 55	2658
	Regulus	W.	51 5 22	2317	52 50 57	2304	54 36 51	2292	56 23 3	2279
	Antares	E.	49 47 33	2417	48 4 22	2409	46 21 0	2403	44 37 29	2398

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
18	Fomalhaut	W.	80 29 34	3336	81 53 4	3333	83 16 37	3329	84 40 15	3326
	SATURN	W.	69 12 29	3083	70 40 59	3082	72 9 31	3081	73 38 4	3078
	a Pegasi	W.	65 45 12	3499	67 5 37	3488	68 26 15	3478	69 47 3	3468
	SUN	E.	32 51 38	3473	31 30 44	3474	30 9 51	3475	28 48 59	3475
19	Fomalhaut	W.	91 39 16	3312	93 3 14	3309	94 27 15	3306	95 51 20	3304
	SATURN	W.	81 1 37	3065	82 30 30	3061	83 59 27	3057	85 28 29	3054
	a Pegasi	W.	76 33 37	3427	77 55 23	3420	79 17 17	3413	80 39 19	3406
	SUN	E.	22 4 58	3486	20 44 18	3490	19 23 43	3497	18 3 15	3506
23	SUN	W.	22 54 58	3278	24 19 35	3264	25 44 29	3251	27 9 38	3239
	Regulus	E.	34 9 11	2881	32 36 28	2873	31 3 35	2866	29 30 33	2858
	Spica	E.	88 3 12	2910	86 31 6	2903	84 58 51	2896	83 26 27	2888
24	SUN	W.	34 18 53	3181	35 45 25	3170	37 12 10	3159	38 39 8	3148
	Regulus	E.	21 42 51	2820	20 8 49	2812	18 34 36	2804	17 0 13	2797
	Spica	E.	75 41 54	2849	74 8 29	2840	72 34 53	2832	71 1 7	2824
25	SUN	W.	45 57 17	3093	47 25 35	3082	48 54 7	3071	50 22 52	3059
	Pollux	W.	28 5 18	2953	29 36 30	2924	31 8 19	2897	32 40 42	2872
	Spica	E.	63 9 35	2782	61 34 44	2774	59 59 42	2766	58 24 29	2757
26	SUN	W.	57 50 15	3001	59 20 27	2988	60 50 55	2976	62 21 38	2964
	Pollux	W.	40 29 52	2770	42 4 59	2753	43 40 29	2736	45 16 21	2720
	VENUS	W.	24 42 40	3096	26 10 54	3082	27 39 26	3068	29 8 15	3053
	Spica	E.	50 25 35	2715	48 49 15	2707	47 12 45	2699	45 36 4	2692
	Antares	E.	96 20 1	2717	94 43 43	2706	93 7 11	2695	91 30 24	2684
27	SUN	W.	69 59 10	2900	71 31 29	2887	73 4 5	2873	74 36 58	2860
	Pollux	W.	53 21 4	2642	54 59 2	2627	56 37 21	2612	58 15 59	2597
	VENUS	W.	36 36 39	2984	38 7 12	2971	39 38 1	2956	41 9 9	2942
	Spica	E.	37 30 16	2660	35 52 42	2655	34 15 2	2652	32 37 17	2650
	Antares	E.	83 22 39	2627	81 44 20	2615	80 5 46	2603	78 26 55	2592
28	SUN	W.	82 25 42	2792	84 0 21	2779	85 35 17	2764	87 10 32	2750
	Pollux	W.	66 34 9	2526	68 14 46	2512	69 55 43	2498	71 36 59	2484
	VENUS	W.	48 49 14	2871	50 22 10	2857	51 55 24	2843	53 28 56	2828
	Regulus	W.	30 22 39	2472	32 4 31	2460	33 46 41	2447	35 29 9	2434
	Spica	E.	24 28 52	2676	22 51 40	2695	21 14 54	2723	19 38 44	2760
	Antares	E.	70 8 47	2535	68 28 22	2524	66 47 42	2512	65 6 46	2502
29	SUN	W.	95 11 21	2681	96 48 27	2666	98 25 52	2653	100 3 35	2639
	Pollux	W.	80 8 11	2416	81 51 23	2403	83 34 54	2389	85 18 44	2376
	VENUS	W.	61 21 20	2756	62 56 46	2742	64 32 30	2727	66 8 34	2713
	Regulus	W.	44 6 9	2369	45 50 29	2355	47 35 8	2342	49 20 6	2330
	Antares	E.	56 38 23	2450	54 56 0	2441	53 13 23	2432	51 30 34	2424
30	SUN	W.	108 16 48	2572	109 56 22	2559	111 36 13	2546	113 16 22	2534
	Pollux	W.	94 2 33	2314	95 48 12	2302	97 34 9	2291	99 20 22	2279
	VENUS	W.	74 13 32	2644	75 51 27	2630	77 29 41	2617	79 8 12	2604
	Regulus	W.	58 9 33	2267	59 56 21	2255	61 43 27	2243	63 30 51	2231
	Antares	E.	42 53 51	2394	41 10 8	2391	39 26 21	2390	37 42 32	2391

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
SUN.	1	6 37 57.33	10.348	N.23 9 46.2	− 9.38	15 45.72	68.78	3 25.82	0.489
Mon.	2	6 42 5.53	10.337	23 5 48.9	10.39	15 45.71	68.75	3 37.43	0.478
Tues.	3	6 46 13.46	10.325	23 1 27.4	11.40	15 45.71	68.71	3 48.77	0.466
Wed.	4	6 50 21.08	10.312	22 56 41.7	− 12.40	15 45.71	68.67	3 59.80	0.453
Thur.	5	6 54 28.39	10.299	22 51 32.1	13.39	15 45.72	68.62	4 10.52	0.440
Frid.	6	6 58 35.37	10.285	22 45 58.5	14.38	15 45.73	68.57	4 20.91	0.426
Sat.	7	7 2 42.02	10.270	22 40 1.3	− 15.37	15 45.74	68.52	4 30.98	0.412
SUN.	8	7 6 48.32	10.255	22 33 40.5	16.35	15 45.75	68.47	4 40.68	0.397
Mon.	9	7 10 54.23	10.240	22 26 56.2	17.32	15 45.77	68.41	4 50.02	0.381
Tues.	10	7 14 59.75	10.223	22 19 48.7	− 18.29	15 45.79	68.35	4 58.97	0.365
Wed.	11	7 19 4.89	10.206	22 12 18.0	19.25	15 45.82	68.29	5 7.53	0.348
Thur.	12	7 23 9.61	10.188	22 4 24.4	20.20	15 45.85	68.23	5 15.67	0.331
Frid.	13	7 27 13.91	10.170	21 56 8.1	− 21.15	15 45.88	68.17	5 23.40	0.313
Sat.	14	7 31 17.76	10.151	21 47 29.2	22.09	15 45.92	68.11	5 30.67	0.294
SUN.	15	7 35 21.15	10.132	21 38 27.8	23.01	15 45.96	68.04	5 37.47	0.274
Mon.	16	7 39 24.07	10.112	21 29 4.4	− 23.93	15 46.01	67.97	5 43.82	0.254
Tues.	17	7 43 26.49	10.091	21 19 19.0	24.84	15 46.06	67.90	5 49.67	0.233
Wed.	18	7 47 28.40	10.070	21 9 11.8	25.74	15 46.12	67.83	5 55.02	0.212
Thur.	19	7 51 29.80	10.048	20 58 43.1	− 26.63	15 46.18	67.75	5 59.85	0.190
Frid.	20	7 55 30.67	10.025	20 47 53.1	27.51	15 46.24	67.67	6 4.15	0.168
Sat.	21	7 59 31.00	10.002	20 36 42.1	28.39	15 46.31	67.59	6 7.91	0.145
SUN.	22	8 3 30.76	9.979	20 25 10.1	− 29.25	15 46.39	67.51	6 11.10	0.121
Mon.	23	8 7 29.95	9.955	20 13 17.7	30.10	15 46.48	67.43	6 13.74	0.097
Tues.	24	8 11 28.55	9.931	20 1 5.0	30.94	15 46.57	67.35	6 15.78	0.073
Wed.	25	8 15 26.57	9.906	19 48 32.2	− 31.77	15 46.67	67.26	6 17.23	0.048
Thur.	26	8 19 23.98	9.881	19 35 39.7	32.59	15 46.77	67.18	6 18.08	0.023
Frid.	27	8 23 20.78	9.855	19 22 27.8	33.40	15 46.87	67.09	6 18.32	0.003
Sat.	28	8 27 16.96	9.828	19 8 56.5	− 34.20	15 46.98	67.01	6 17.95	0.028
SUN.	29	8 31 12.51	9.802	18 55 6.3	34.98	15 47.10	66.92	6 16.94	0.054
Mon.	30	8 35 7.44	9.776	18 40 57.6	35.75	15 47.21	66.84	6 15.33	0.080
Tues.	31	8 39 1.75	9.750	18 26 30.3	36.51	15 47.33	66.75	6 13.09	0.106
Wed.	32	8 42 55.43	9.724	N.18 11 45.0	− 37.26	15 47.45	66.67	6 10.23	0.132

Note.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.19$ from the sidereal time. The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ′ ″	″	m s	s	h m s
SUN.	1	6 37 56.74	10.346	N.23 9 46.7	− 9.38	3 25.79	0.489	6 34 30.95
Mon.	2	6 42 4.91	10.335	23 5 49.5	10.39	3 37.40	0.478	6 38 27.51
Tues.	3	6 46 12.80	10.323	23 1 28.1	11.40	3 48.74	0.466	6 42 24.06
Wed.	4	6 50 20.39	10.310	22 56 42.5	− 12.40	3 59.77	0.453	6 46 20.62
Thur.	5	6 54 27.67	10.297	22 51 33.0	13.39	4 10.49	0.440	6 50 17.18
Frid.	6	6 58 34.62	10.283	22 45 59.6	14.38	4 20.89	0.426	6 54 13.74
Sat.	7	7 2 41.24	10.268	22 40 2.5	− 15.37	4 30.95	0.412	6 58 10.29
SUN.	8	7 6 47.50	10.253	22 33 41.8	16.35	4 40.65	0.397	7 2 6.85
Mon.	9	7 10 53.40	10.238	22 26 57.6	17.32	4 49.99	0.381	7 6 3.41
Tues.	10	7 14 58.91	10.222	22 19 50.2	− 18.29	4 58.94	0.365	7 9 59.96
Wed.	11	7 19 4.02	10.205	22 12 19.7	19.25	5 7.50	0.348	7 13 56.52
Thur.	12	7 23 8.72	10.187	22 4 26.2	20.20	5 15.65	0.331	7 17 53.08
Frid.	13	7 27 13.00	10.169	21 56 10.0	− 21.15	5 23.37	0.313	7 21 49.63
Sat.	14	7 31 16.83	10.150	21 47 31.2	22.09	5 30.64	0.294	7 25 46.19
SUN.	15	7 35 20.20	10.131	21 38 30.0	23.01	5 37.45	0.274	7 29 42.75
Mon.	16	7 39 23.10	10.111	21 29 6.7	− 23.93	5 43.80	0.254	7 33 39.30
Tues.	17	7 43 25.51	10.090	21 19 21.4	24.84	5 49.65	0.233	7 37 35.86
Wed.	18	7 47 27.41	10.069	21 9 14.3	25.74	5 55.00	0.212	7 41 32.41
Thur.	19	7 51 28.80	10.047	20 58 45.7	− 26.63	5 59.83	0.190	7 45 28.97
Frid.	20	7 55 29.66	10.024	20 47 55.9	27.51	6 4.13	0.168	7 49 25.53
Sat.	21	7 59 29.98	10.001	20 36 45.0	28.39	6 7.89	0.145	7 53 22.08
SUN.	22	8 3 29.73	9.978	20 25 13.2	− 29.25	6 11.09	0.121	7 57 18.64
Mon.	23	8 7 28.92	9.954	20 13 20.9	30.10	6 13.73	0.097	8 1 15.19
Tues.	24	8 11 27.52	9.930	20 1 8.3	30.94	6 15.77	0.073	8 5 11.75
Wed.	25	8 15 25.53	9.905	19 48 35.6	− 31.77	6 17.23	0.048	8 9 8.30
Thur.	26	8 19 22.94	9.880	19 35 43.2	32.59	6 18.08	0.023	8 13 4.86
Frid.	27	8 23 19.74	9.854	19 22 31.3	33.40	6 18.32	0.003	8 17 1.42
Sat.	28	8 27 15.92	9.828	19 9 0.1	− 34.20	6 17.95	0.028	8 20 57.97
SUN.	29	8 31 11.48	9.802	18 55 10.0	34.98	6 16.95	0.054	8 24 54.53
Mon.	30	8 35 6.42	9.776	18 41 1.3	35.75	6 15.34	0.080	8 28 51.08
Tues.	31	8 39 0.74	9.750	18 26 34.1	36.51	6 13.10	0.106	8 32 47.64
Wed.	32	8 42 54.43	9.724	N 18 11 48.8	− 37.26	6 10.24	0.132	8 36 44.19

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing.

Diff. for 1 Hour,
+9ˢ.8565.
(Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	λ′	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	182	98 43 15.9	43 3.4	142.99	+ 0.33	0.007 1873	+ 1.2	17 22 37.77
2	183	99 40 27.4	40 14.6	142.97	0.33	0.007 1894	+ 0.5	17 18 41.86
3	184	100 37 38.6	37 25.6	142.96	0.29	0.007 1899	− 0.1	17 14 45.95
4	185	101 34 49.5	34 36.4	142.95	+ 0.22	0.007 1889	− 0.7	17 10 50.04
5	186	102 32 0.3	31 47.0	142.95	+ 0.11	0.007 1864	1.3	17 6 54.13
6	187	103 29 11.1	28 57.7	142.95	0.00	0.007 1826	1.9	17 2 58.22
7	188	104 26 22.0	26 8.4	142.96	− 0.14	0.007 1774	− 2.5	16 59 2.30
8	189	105 23 33.1	23 19.3	142.97	0.29	0.007 1708	3.1	16 55 6.39
9	190	106 20 44.4	20 30.5	142.98	0.43	0.007 1627	3.7	16 51 10.48
10	191	107 17 56.2	17 42.1	143.00	− 0.55	0.007 1530	− 4.4	16 47 14.57
11	192	108 15 8.4	14 54.2	143.02	0.66	0.007 1416	5.1	16 43 18.66
12	193	109 12 21.1	12 6.7	143.04	0.76	0.007 1284	5.9	16 39 22.75
13	194	110 9 34.3	9 19.8	143.06	− 0.83	0.007 1132	− 6.7	16 35 26.84
14	195	111 6 48.1	6 33.4	143.09	0.87	0.007 0960	7.6	16 31 30.93
15	196	112 4 2.5	3 47.7	143.11	0.88	0.007 0767	8.5	16 27 35.02
16	197	113 1 17.5	1 2.5	143.14	− 0.86	0.007 0552	− 9.4	16 23 39.11
17	198	113 58 33.0	58 17.9	143.16	0.82	0.007 0313	10.4	16 19 43.20
18	199	114 55 49.2	55 34.0	143.19	0.76	0.007 0051	11.4	16 15 47.29
19	200	115 53 6.0	52 50.6	143.21	− 0.66	0.006 9765	− 12.4	16 11 51.38
20	201	116 50 23.4	50 7.8	143.24	0.55	0.006 9454	13.5	16 7 55.47
21	202	117 47 41.4	47 25.7	143.26	0.42	0.006 9118	14.5	16 3 59.56
22	203	118 44 59.9	44 44.0	143.28	− 0.29	0.006 8756	− 15.6	16 0 3.65
23	204	119 42 19.0	42 3.0	143.30	0.16	0.006 8369	16.6	15 56 7.74
24	205	120 39 38.5	39 22.3	143.32	− 0.03	0.006 7957	17.7	15 52 11.83
25	206	121 36 58.5	36 42.2	143.34	+ 0.08	0.006 7521	− 18.7	15 48 15.92
26	207	122 34 19.0	34 2.6	143.36	0.18	0.006 7062	19.6	15 44 20.01
27	208	123 31 39.9	31 23.3	143.38	0.24	0.006 6580	20.5	15 40 24.10
28	209	124 29 1.3	28 44.6	143.40	+ 0.28	0.006 6077	− 21.3	15 36 28.19
29	210	125 26 23.1	26 6.2	143.42	0.29	0.006 5556	22.1	15 32 32.28
30	211	126 23 45.4	23 28.4	143.44	0.27	0.006 5016	22.8	15 28 36.37
31	212	127 21 8.3	20 51.1	143.46	0.20	0.006 4461	23.5	15 24 40.46
32	213	128 18 31.7	18 14.4	143.49	+ 0.10	0.006 3890	− 24.1	15 20 44.55

Note.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ′ are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour, $-9^{s}.8296$. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	16 17.7	16 22.3	59 42.4	+ 1.50	59 59.4	+ 1.32	7 55.6	2.24	9.5
2	16 26.3	16 29.7	60 14.1	1.12	60 26.3	0.88	8 50.9	2.37	10.5
3	16 32.0	16 33.6	60 35.3	+ 0.60	60 40.9	+ 0.30	9 49.3	2.49	11.5
4	16 34.1	16 33.5	60 42.6	− 0.02	60 40.3	− 0.36	10 50.1	2.56	12.5
5	16 31.7	16 28.9	60 33.9	0.70	60 23.6	1.02	11 51.9	2.56	13.5
6	16 25.1	16 20.3	60 9.4	1.32	59 51.8	1.59	12 52.9	2.49	14.5
7	16 14.7	16 8.4	59 31.2	− 1.82	59 8.2	− 2.00	13 51.1	2.35	15.5
8	16 1.6	15 54.5	58 43.3	2.13	58 17.1	2.20	14 45.1	2.19	16.5
9	15 47.2	15 39.9	57 50.3	2.23	57 23.4	2.22	15 36.4	2.04	17.5
10	15 32.7	15 25.8	56 57.0	− 2.16	56 31.6	− 2.06	16 23.9	1.92	18.5
11	15 19.2	15 13.1	56 7.5	1.94	55 45.0	1.78	17 9.0	1.84	19.5
12	15 7.5	15 2.5	55 24.6	1.61	55 6.3	1.42	17 52.4	1.79	20.5
13	14 58.2	14 54.5	54 50.4	− 1.23	54 36.9	− 1.02	18 35.3	1.78	21.5
14	14 51.5	14 49.2	54 25.9	0.81	54 17.5	0.60	19 18.3	1.81	22.5
15	14 47.6	14 46.7	54 11.5	− 0.39	54 8.0	− 0.20	20 2.1	1.85	23.5
16	14 46.3	14 46.6	54 6.8	0.00	54 7.9	+ 0.18	20 47.4	1.92	24.5
17	14 47.5	14 48.9	54 11.0	+ 0.34	54 16.1	0.50	21 34.3	1.99	25.5
18	14 50.8	14 53.1	54 23.0	0.64	54 31.5	0.76	22 22.8	2.05	26.5
19	14 55.8	14 58.8	54 41.4	+ 0.88	54 52.5	+ 0.97	23 12.7	2.09	27.5
20	15 2.1	15 5.6	55 4.6	1.05	55 17.7	1.11	6	. .	28.5
21	15 9.4	15 13.2	55 31.4	1.16	55 45.6	1.20	0 3.2	2.11	0.0
22	15 17.2	15 21.3	56 0.2	+ 1.23	56 15.1	+ 1.25	0 53.7	2.10	1.0
23	15 25.4	15 29.5	56 30.2	1.26	56 45.3	1.26	1 43.8	2.07	2.0
24	15 33.6	15 37.7	57 0.5	1.26	57 15.6	1.26	2 33.2	2.04	3.0
25	15 41.8	15 45.9	57 30.6	+ 1.25	57 45.5	+ 1.23	3 22.0	2.03	4.0
26	15 49.9	15 53.8	58 0.2	1.21	58 14.7	1.19	4 10.7	2.04	5.0
27	15 57.7	16 1.4	58 28.8	1.16	58 42.6	1.12	4 59.9	2.08	6.0
28	16 5.0	16 8.4	58 55.7	+ 1.06	59 8.1	+ 0.99	5 50.5	2.15	7.0
29	16 11.5	16 14.2	59 19.5	0.90	59 29.7	0.79	6 43.2	2.25	8.0
30	16 16.6	16 18.6	59 38.5	0.65	59 45.5	0.50	7 38.5	2.36	9.0
31	16 20.0	16 20.7	59 50.5	+ 0.32	59 53.2	+ 0.12	8 36.4	2.45	10.0
32	16 20.7	16 20.0	59 53.4	− 0.09	59 50.8	− 0.33	9 36.2	2.50	11.0

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 1.					TUESDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	14 13 8.82	2.2916	S. 7 56 8.6	11.557	0	16 8 24.61	2.5136	S. 16 2 4.0	8.127
1	14 15 26.44	2.2958	8 7 40.9	11.519	1	16 10 55.56	2.5180	16 10 8.4	8.020
2	14 17 44.31	2.2999	8 19 10.9	11.481	2	16 13 26.77	2.5223	16 18 6.4	7.912
3	14 20 2.43	2.3042	8 30 38.6	11.441	3	16 15 58.24	2.5267	16 25 57.8	7.802
4	14 22 20.81	2.3085	8 42 3.8	11.399	4	16 18 29.97	2.5309	16 33 42.6	7.690
5	14 24 39.45	2.3129	8 53 26.5	11.357	5	16 21 1.95	2.5352	16 41 20.6	7.578
6	14 26 58.36	2.3173	9 4 46.6	11.312	6	16 23 34.19	2.5393	16 48 51.9	7.465
7	14 29 17.53	2.3217	9 16 3.9	11.266	7	16 26 6.67	2.5433	16 56 16.4	7.350
8	14 31 36.96	2.3261	9 27 18.5	11.218	8	16 28 39.39	2.5474	17 3 33.9	7.233
9	14 33 56.66	2.3306	9 38 30.1	11.169	9	16 31 12.36	2.5514	17 10 44.4	7.116
10	14 36 16.63	2.3351	9 49 38.8	11.120	10	16 33 45.56	2.5553	17 17 47.8	6.998
11	14 38 36.87	2.3396	10 0 44.5	11.069	11	16 36 19.00	2.5593	17 24 44.1	6.878
12	14 40 57.38	2.3442	10 11 47.1	11.016	12	16 38 52.67	2.5630	17 31 33.1	6.756
13	14 43 18.17	2.3488	10 22 46.4	10.961	13	16 41 26.56	2.5668	17 38 14.8	6.634
14	14 45 39.23	2.3533	10 33 42.4	10.906	14	16 44 0.68	2.5704	17 44 49.2	6.511
15	14 48 0.57	2.3580	10 44 35.1	10.848	15	16 46 35.01	2.5740	17 51 16.1	6.386
16	14 50 22.19	2.3627	10 55 24.2	10.788	16	16 49 9.56	2.5775	17 57 35.5	6.260
17	14 52 44.09	2.3673	11 6 9.7	10.728	17	16 51 44.31	2.5808	18 3 47.3	6.132
18	14 55 6.27	2.3720	11 16 51.6	10.667	18	16 54 19.26	2.5843	18 9 51.4	6.005
19	14 57 28.73	2.3768	11 27 29.7	10.603	19	16 56 54.42	2.5876	18 15 47.9	5.877
20	14 59 51.48	2.3816	11 38 4.0	10.539	20	16 59 29.77	2.5907	18 21 36.6	5.746
21	15 2 14.52	2.3863	11 48 34.4	10.472	21	17 2 5.30	2.5938	18 27 17.4	5.615
22	15 4 37.84	2.3910	11 59 0.7	10.405	22	17 4 41.02	2.5968	18 32 50.4	5.483
23	15 7 1.44	2.3958	S. 12 9 23.0	10.336	23	17 7 16.92	2.5998	S. 18 38 15.4	5.350
	MONDAY 2.					WEDNESDAY 4.			
0	15 9 25.33	2.4006	S. 12 19 41.0	10.265	0	17 9 52.99	2.6026	S. 18 43 32.4	5.216
1	15 11 49.51	2.4054	12 29 54.8	10.193	1	17 12 29.23	2.6053	18 48 41.3	5.081
2	15 14 13.98	2.4102	12 40 4.2	10.119	2	17 15 5.62	2.6078	18 53 42.1	4.946
3	15 16 38.73	2.4150	12 50 9.1	10.043	3	17 17 42.17	2.6104	18 58 34.8	4.809
4	15 19 3.78	2.4198	13 0 9.4	9.967	4	17 20 18.87	2.6128	19 3 19.2	4.671
5	15 21 29.11	2.4246	13 10 5.1	9.889	5	17 22 55.71	2.6152	19 7 55.3	4.533
6	15 23 54.73	2.4294	13 19 56.1	9.810	6	17 25 32.69	2.6174	19 12 23.1	4.394
7	15 26 20.64	2.4343	13 29 42.3	9.728	7	17 28 9.80	2.6195	19 16 42.6	4.254
8	15 28 46.84	2.4391	13 39 23.5	9.646	8	17 30 47.03	2.6215	19 20 53.6	4.113
9	15 31 13.33	2.4439	13 48 59.8	9.562	9	17 33 24.38	2.6234	19 24 56.2	3.973
10	15 33 40.11	2.4487	13 58 30.9	9.476	10	17 36 1.84	2.6253	19 28 50.3	3.831
11	15 36 7.17	2.4534	14 7 56.9	9.390	11	17 38 39.41	2.6269	19 32 35.9	3.689
12	15 38 34.52	2.4582	14 17 17.7	9.302	12	17 41 17.07	2.6284	19 36 13.0	3.547
13	15 41 2.16	2.4629	14 26 33.1	9.211	13	17 43 54.82	2.6299	19 39 41.5	3.403
14	15 43 30.07	2.4676	14 35 43.0	9.119	14	17 45 32.66	2.6313	19 43 1.3	3.258
15	15 45 58.27	2.4724	14 44 47.4	9.027	15	17 49 10.57	2.6324	19 46 12.4	3.113
16	15 48 26.76	2.4772	14 53 46.2	8.933	16	17 51 48.55	2.6335	19 49 14.9	2.969
17	15 50 55.53	2.4818	15 2 39.3	8.837	17	17 54 26.59	2.6345	19 52 8.7	2.823
18	15 53 24.57	2.4863	15 11 26.6	8.739	18	17 57 4.69	2.6354	19 54 53.7	2.678
19	15 55 53.89	2.4910	15 20 8.0	8.641	19	17 59 42.84	2.6361	19 57 30.0	2.531
20	15 58 23.49	2.4957	15 28 43.5	8.541	20	18 2 21.02	2.6367	19 59 57.4	2.384
21	16 0 53.37	2.5002	15 37 12.9	8.439	21	18 4 59.24	2.6373	20 2 16.1	2.238
22	16 3 23.51	2.5047	15 45 36.2	8.336	22	18 7 37.49	2.6376	20 4 26.0	2.091
23	16 5 53.93	2.5092	15 53 53.2	8.232	23	18 10 15.75	2.6378	20 6 27.0	1.943
24	16 8 24.61	2.5136	S. 16 2 4.0	8.127	24	18 12 54.02	2.6379	S. 20 8 19.2	1.796

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 5.					SATURDAY 7.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	18 12 54.02	2.6379	S. 20 8 19.2	1.796	0	20 17 20.53	2.5052	S. 18 48 41.5	4.885
1	18 15 32.30	2.6379	20 10 2.5	1.648	1	20 19 50.68	2.5000	18 43 44.8	5.005
2	18 18 10.57	2.6377	20 11 37.0	1.501	2	20 22 20.53	2.4948	18 38 40.9	5.123
3	18 20 48.83	2.6375	20 13 2.6	1.353	3	20 24 50.06	2.4896	18 33 30.0	5.240
4	18 23 27.07	2.6371	20 14 19.3	1.204	4	20 27 19.28	2.4843	18 28 12.1	5.356
5	18 26 5.28	2.6366	20 15 27.1	1.056	5	20 29 48.18	2.4789	18 22 47.3	5.471
6	18 28 43.46	2.6360	20 16 26.0	0.908	6	20 32 16.75	2.4734	18 17 15.6	5.584
7	18 31 21.60	2.6352	20 17 16.1	0.761	7	20 34 44.99	2.4680	18 11 37.2	5.697
8	18 33 59.68	2.6343	20 17 57.3	0.613	8	20 37 12.91	2.4626	18 5 52.0	5.808
9	18 36 37.71	2.6333	20 18 29.6	0.464	9	20 39 40.50	2.4570	18 0 0.2	5.918
10	18 39 15.68	2.6322	20 18 53.0	0.317	10	20 42 7.75	2.4513	17 54 1.9	6.026
11	18 41 53.57	2.6308	20 19 7.6	0.169	11	20 44 34.66	2.4457	17 47 57.1	6.133
12	18 44 31.38	2.6294	20 19 13.3	0.022	12	20 47 1.23	2.4400	17 41 46.0	6.238
13	18 47 9.10	2.6279	20 19 10.2	0.125	13	20 49 27.46	2.4343	17 35 28.5	6.343
14	18 49 46.73	2.6263	20 18 58.3	0.272	14	20 51 53.34	2.4285	17 29 4.8	6.447
15	18 52 24.26	2.6245	20 18 37.6	0.418	15	20 54 18.88	2.4227	17 22 34.9	6.549
16	18 55 1.67	2.6226	20 18 8.1	0.565	16	20 56 44.07	2.4168	17 15 58.9	6.649
17	18 57 38.97	2.6207	20 17 29.8	0.710	17	20 59 8.90	2.4110	17 9 17.0	6.748
18	19 0 16.15	2.6185	20 16 42.9	0.855	18	21 1 33.39	2.4052	17 2 29.1	6.848
19	19 2 53.19	2.6162	20 15 47.2	1.001	19	21 3 57.52	2.3993	16 55 35.3	6.944
20	19 5 30.09	2.6138	20 14 42.8	1.145	20	21 6 21.30	2.3933	16 48 35.8	7.039
21	19 8 6.85	2.6114	20 13 29.8	1.288	21	21 8 44.72	2.3873	16 41 30.6	7.133
22	19 10 43.46	2.6088	20 12 8.2	1.432	22	21 11 7.78	2.3813	16 34 19.8	7.226
23	19 13 19.91	2.6061	S. 20 10 38.0	1.575	23	21 13 30.48	2.3753	S. 16 27 3.5	7.318
	FRIDAY 6.					SUNDAY 8.			
0	19 15 56.19	2.6032	S. 20 8 59.2	1.718	0	21 15 52.82	2.3693	S. 16 19 41.7	7.408
1	19 18 32.29	2.6003	20 7 11.9	1.858	1	21 18 14.80	2.3633	16 12 14.6	7.497
2	19 21 8.22	2.5973	20 5 16.2	1.999	2	21 20 36.42	2.3573	16 4 42.1	7.584
3	19 23 43.96	2.5940	20 3 12.0	2.140	3	21 22 57.68	2.3513	15 57 4.5	7.670
4	19 26 19.50	2.5907	20 0 59.4	2.280	4	21 25 18.58	2.3453	15 49 21.7	7.756
5	19 28 54.84	2.5873	19 58 38.4	2.418	5	21 27 39.11	2.3392	15 41 33.8	7.839
6	19 31 29.98	2.5838	19 56 9.2	2.556	6	21 29 59.28	2.3332	15 33 41.0	7.921
7	19 34 4.90	2.5802	19 53 31.7	2.694	7	21 32 19.09	2.3272	15 25 43.3	8.002
8	19 36 39.60	2.5765	19 50 45.9	2.831	8	21 34 38.54	2.3211	15 17 40.8	8.081
9	19 39 14.08	2.5728	19 47 52.0	2.966	9	21 36 57.62	2.3150	15 9 33.6	8.159
10	19 41 48.33	2.5689	19 44 50.0	3.101	10	21 39 16.34	2.3090	15 1 21.7	8.237
11	19 44 22.35	2.5648	19 41 39.9	3.234	11	21 41 34.70	2.3029	14 53 5.2	8.313
12	19 46 56.11	2.5607	19 38 21.9	3.367	12	21 43 52.69	2.2968	14 44 44.2	8.387
13	19 49 29.63	2.5566	19 34 55.9	3.500	13	21 46 10.32	2.2909	14 36 18.8	8.459
14	19 52 2.90	2.5523	19 31 21.9	3.631	14	21 48 27.60	2.2849	14 27 49.1	8.531
15	19 54 35.91	2.5479	19 27 40.2	3.761	15	21 50 44.51	2.2789	14 19 15.1	8.602
16	19 57 8.65	2.5435	19 23 50.6	3.891	16	21 53 1.07	2.2730	14 10 36.9	8.671
17	19 59 41.13	2.5390	19 19 53.3	4.018	17	21 55 17.27	2.2670	14 1 54.6	8.738
18	20 2 13.33	2.5343	19 15 48.4	4.145	18	21 57 33.11	2.2611	13 53 8.3	8.804
19	20 4 45.25	2.5297	19 11 35.9	4.272	19	21 59 48.60	2.2552	13 44 18.1	8.870
20	20 7 16.89	2.5249	19 7 15.8	4.397	20	22 2 3.73	2.2493	13 35 23.9	8.934
21	20 9 48.24	2.5201	19 2 48.3	4.521	21	22 4 18.51	2.2433	13 26 26.0	8.997
22	20 12 19.30	2.5152	18 58 13.3	4.644	22	22 6 32.93	2.2375	13 17 24.3	9.059
23	20 14 50.06	2.5103	18 53 31.0	4.765	23	22 8 47.01	2.2318	13 8 18.9	9.119
24	20 17 20.53	2.5052	S. 18 48 41.5	4.885	24	22 11 0.74	2.2259	S. 12 59 10.0	9.178

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 9.					WEDNESDAY 11.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	22 11 0.74	2.2259	S. 12 59 10.0	9.178	0	23 51 56.10	1.9981	S. 4 52 23.1	10.710
1	22 13 14.12	2.2202	12 49 57.6	9.235	1	23 53 55.88	1.9946	4 41 40.2	10.719
2	22 15 27.16	2.2144	12 40 41.8	9.292	2	23 55 55.45	1.9912	4 30 56.8	10.728
3	22 17 39.85	2.2087	12 31 22.6	9.347	3	23 57 54.82	1.9878	4 20 12.9	10.735
4	22 19 52.20	2.2031	12 22 0.2	9.400	4	23 59 53.99	1.9846	4 9 28.6	10.741
5	22 22 4.22	2.1974	12 12 34.6	9.453	5	0 1 52.97	1.9813	3 58 44.0	10.747
6	22 24 15.89	2.1918	12 3 5.8	9.505	6	0 3 51.75	1.9782	3 47 59.0	10.752
7	22 26 27.23	2.1862	11 53 34.0	9.555	7	0 5 50.35	1.9752	3 37 13.8	10.756
8	22 28 38.23	2.1807	11 43 59.2	9.605	8	0 7 48.77	1.9722	3 26 28.3	10.759
9	22 30 48.91	2.1752	11 34 21.4	9.653	9	0 9 47.01	1.9692	3 15 42.7	10.761
10	22 32 59.25	2.1697	11 24 40.8	9.700	10	0 11 45.07	1.9662	3 4 57.0	10.763
11	22 35 9.27	2.1643	11 14 57.4	9.746	11	0 13 42.95	1.9633	2 54 11.2	10.764
12	22 37 18.96	2.1588	11 5 11.3	9.790	12	0 15 40.67	1.9606	2 43 25.3	10.764
13	22 39 28.33	2.1535	10 55 22.6	9.833	13	0 17 38.22	1.9578	2 32 39.5	10.764
14	22 41 37.38	2.1483	10 45 31.3	9.876	14	0 19 35.61	1.9552	2 21 53.6	10.763
15	22 43 46.12	2.1430	10 35 37.5	9.918	15	0 21 32.84	1.9525	2 11 7.9	10.760
16	22 45 54.54	2.1378	10 25 41.2	9.958	16	0 23 29.91	1.9499	2 0 22.4	10.758
17	22 48 2.66	2.1327	10 15 42.6	9.996	17	0 25 26.83	1.9474	1 49 37.0	10.755
18	22 50 10.46	2.1275	10 5 41.7	10.034	18	0 27 23.60	1.9450	1 38 51.8	10.751
19	22 52 17.96	2.1224	9 55 38.5	10.072	19	0 29 20.23	1.9427	1 28 6.9	10.746
20	22 54 25.15	2.1174	9 45 33.1	10.108	20	0 31 16.72	1.9403	1 17 22.3	10.741
21	22 56 32.05	2.1125	9 35 25.6	10.142	21	0 33 13.07	1.9381	1 6 38.0	10.735
22	22 58 38.65	2.1075	9 25 16.1	10.175	22	0 35 9.29	1.9359	0 55 54.1	10.728
23	23 0 44.95	2.1027	S. 9 15 4.6	10.208	23	0 37 5.38	1.9338	S. 0 45 10.6	10.721
	TUESDAY 10.					THURSDAY 12.			
0	23 2 50.97	2.0979	S. 9 4 51.1	10.240	0	0 39 1.34	1.9317	S. 0 34 27.6	10.713
1	23 4 56.70	2.0930	8 54 35.8	10.270	1	0 40 57.18	1.9297	0 23 45.1	10.704
2	23 7 2.13	2.0883	8 44 18.7	10.299	2	0 42 52.90	1.9277	0 13 3.1	10.695
3	23 9 7.29	2.0837	8 33 59.9	10.328	3	0 44 48.50	1.9258	S. 0 2 21.7	10.685
4	23 11 12.17	2.0790	8 23 39.4	10.355	4	0 46 43.99	1.9239	N. 0 8 19.1	10.674
5	23 13 16.77	2.0744	8 13 17.3	10.382	5	0 48 39.37	1.9221	0 18 59.2	10.663
6	23 15 21.10	2.0699	8 2 53.6	10.408	6	0 50 34.64	1.9204	0 29 38.7	10.652
7	23 17 25.16	2.0655	7 52 28.4	10.433	7	0 52 29.82	1.9188	0 40 17.4	10.638
8	23 19 28.96	2.0611	7 42 1.7	10.457	8	0 54 24.89	1.9171	0 50 55.3	10.626
9	23 21 32.49	2.0567	7 31 33.6	10.479	9	0 56 19.87	1.9155	1 1 32.5	10.613
10	23 23 35.76	2.0524	7 21 4.2	10.501	10	0 58 14.75	1.9140	1 12 8.8	10.598
11	23 25 38.78	2.0481	7 10 33.5	10.522	11	1 0 9.55	1.9126	1 22 44.3	10.583
12	23 27 41.53	2.0438	7 0 1.6	10.542	12	1 2 4.26	1.9112	1 33 18.8	10.568
13	23 29 44.04	2.0397	6 49 28.5	10.561	13	1 3 58.89	1.9098	1 43 52.4	10.552
14	23 31 46.30	2.0357	6 38 54.3	10.578	14	1 5 53.44	1.9086	1 54 25.0	10.535
15	23 33 48.32	2.0317	6 28 19.1	10.595	15	1 7 47.92	1.9073	2 4 56.6	10.518
16	23 35 50.10	2.0277	6 17 42.9	10.612	16	1 9 42.32	1.9062	2 15 27.2	10.500
17	23 37 51.64	2.0238	6 7 5.7	10.628	17	1 11 36.66	1.9052	2 25 56.6	10.482
18	23 39 52.95	2.0199	5 56 27.6	10.643	18	1 13 30.94	1.9041	2 36 25.0	10.463
19	23 41 54.03	2.0161	5 45 48.6	10.656	19	1 15 25.15	1.9030	2 46 52.2	10.443
20	23 43 54.88	2.0123	5 35 8.9	10.668	20	1 17 19.30	1.9021	2 57 18.2	10.423
21	23 45 55.51	2.0087	5 24 28.4	10.681	21	1 19 13.40	1.9013	3 7 42.9	10.402
22	23 47 55.92	2.0050	5 13 47.2	10.692	22	1 21 7.45	1.9005	3 18 6.4	10.381
23	23 49 56.11	2.0015	5 3 5.4	10.701	23	1 23 1.46	1.8998	3 28 28.6	10.359
24	23 51 56.10	1.9981	S. 4 52 23.1	10.710	24	1 24 55.42	1.8990	N. 3 38 49.5	10.337

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 13.					SUNDAY 15.				
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	1 24 55.42	1.8990	N. 3 38 49.5	10.337	0	2 56 14.12	1.9238	N. 11 18 58.8	8.633
1	1 26 49.34	1.8983	3 49 9.0	10.313	1	2 58 9.60	1.9255	11 27 35.4	8.585
2	1 28 43.22	1.8977	3 59 27.1	10.290	2	3 0 5.18	1.9272	11 36 9.0	8.536
3	1 30 37.06	1.8972	4 9 43.8	10.267	3	3 2 0.86	1.9288	11 44 39.7	8.488
4	1 32 30.88	1.8968	4 19 59.1	10.242	4	3 3 56.64	1.9305	11 53 7.5	8.438
5	1 34 24.67	1.8963	4 30 12.8	10.216	5	3 5 52.52	1.9323	12 1 32.2	8.386
6	1 36 18.43	1.8958	4 40 25.0	10.191	6	3 7 48.51	1.9341	12 9 53.8	8.335
7	1 38 12.17	1.8955	4 50 35.7	10.165	7	3 9 44.61	1.9358	12 18 12.4	8.283
8	1 40 5.89	1.8953	5 0 44.8	10.138	8	3 11 40.81	1.9377	12 26 27.8	8.231
9	1 41 59.60	1.8951	5 10 52.3	10.111	9	3 13 37.13	1.9396	12 34 40.1	8.179
10	1 43 53.30	1.8948	5 20 58.1	10.083	10	3 15 33.56	1.9415	12 42 49.3	8.126
11	1 45 46.98	1.8948	5 31 2.2	10.054	11	3 17 30.11	1.9435	12 50 55.2	8.072
12	1 47 40.67	1.8948	5 41 4.6	10.026	12	3 19 26.78	1.9455	12 58 57.9	8.018
13	1 49 34.35	1.8947	5 51 5.3	9.997	13	3 21 23.57	1.9474	13 6 57.3	7.963
14	1 51 28.03	1.8947	6 1 4.2	9.966	14	3 23 20.47	1.9494	13 14 53.5	7.908
15	1 53 21.71	1.8948	6 11 1.2	9.935	15	3 25 17.50	1.9516	13 22 46.3	7.852
16	1 55 15.40	1.8949	6 20 56.4	9.904	16	3 27 14.66	1.9537	13 30 35.7	7.795
17	1 57 9.10	1.8951	6 30 49.7	9.873	17	3 29 11.94	1.9558	13 38 21.7	7.738
18	1 59 2.81	1.8953	6 40 41.1	9.841	18	3 31 9.35	1.9579	13 46 4.3	7.681
19	2 0 56.53	1.8956	6 50 30.6	9.808	19	3 33 6.89	1.9601	13 53 43.4	7.623
20	2 2 50.28	1.8960	7 0 18.1	9.775	20	3 35 4.56	1.9623	14 1 19.0	7.563
21	2 4 44.05	1.8963	7 10 3.6	9.742	21	3 37 2.37	1.9646	14 8 51.0	7.504
22	2 6 37.84	1.8968	7 19 47.1	9.707	22	3 39 0.31	1.9668	14 16 19.5	7.445
23	2 8 31.66	1.8973	N. 7 29 28.4	9.672	23	3 40 58.39	1.9692	N. 14 23 44.4	7.384
SATURDAY 14.					MONDAY 16.				
0	2 10 25.51	1.8978	N. 7 39 7.7	9.637	0	3 42 56.61	1.9715	N. 14 31 5.6	7.323
1	2 12 19.39	1.8983	7 48 44.8	9.601	1	3 44 54.97	1.9738	14 38 23.2	7.263
2	2 14 13.31	1.8990	7 58 19.8	9.565	2	3 46 53.46	1.9761	14 45 37.1	7.201
3	2 16 7.27	1.8997	8 7 52.6	9.528	3	3 48 52.10	1.9786	14 52 47.3	7.138
4	2 18 1.27	1.9003	8 17 23.2	9.491	4	3 50 50.89	1.9810	14 59 53.7	7.075
5	2 19 55.31	1.9012	8 26 51.5	9.453	5	3 52 49.82	1.9833	15 6 56.3	7.012
6	2 21 49.41	1.9020	8 36 17.5	9.414	6	3 54 48.89	1.9858	15 13 55.1	6.948
7	2 23 43.55	1.9028	8 45 41.2	9.376	7	3 56 48.11	1.9883	15 20 50.0	6.883
8	2 25 37.74	1.9038	8 55 2.6	9.336	8	3 58 47.49	1.9908	15 27 41.0	6.818
9	2 27 31.99	1.9047	9 4 21.5	9.296	9	4 0 47.01	1.9933	15 34 28.1	6.752
10	2 29 26.30	1.9056	9 13 38.1	9.256	10	4 2 46.68	1.9958	15 41 11.2	6.685
11	2 31 20.66	1.9066	9 22 52.2	9.214	11	4 4 46.50	1.9983	15 47 50.3	6.618
12	2 33 15.09	1.9078	9 32 3.8	9.173	12	4 6 46.47	2.0008	15 54 25.4	6.551
13	2 35 9.59	1.9088	9 41 12.9	9.131	13	4 8 46.60	2.0034	16 0 56.4	6.483
14	2 37 4.15	1.9100	9 50 19.5	9.089	14	4 10 46.88	2.0060	16 7 23.4	6.415
15	2 38 58.79	1.9113	9 59 23.6	9.046	15	4 12 47.32	2.0086	16 13 46.2	6.346
16	2 40 53.50	1.9125	10 8 25.0	9.002	16	4 14 47.91	2.0112	16 20 4.9	6.276
17	2 42 48.29	1.9138	10 17 23.8	8.958	17	4 16 48.66	2.0138	16 26 19.3	6.205
18	2 44 43.15	1.9151	10 26 19.9	8.913	18	4 18 49.57	2.0165	16 32 29.5	6.135
19	2 46 38.10	1.9165	10 35 13.3	8.868	19	4 20 50.64	2.0191	16 38 35.5	6.064
20	2 48 33.13	1.9178	10 44 4.0	8.822	20	4 22 51.86	2.0217	16 44 37.2	5.992
21	2 50 28.24	1.9193	10 52 51.9	8.776	21	4 24 53.24	2.0244	16 50 34.5	5.919
22	2 52 23.44	1.9208	11 1 37.1	8.729	22	4 26 54.79	2.0271	16 56 27.5	5.847
23	2 54 18.74	1.9223	11 10 19.4	8.681	23	4 28 56.49	2.0298	17 2 16.1	5.773
24	2 56 14.12	1.9238	N. 11 18 58.8	8.633	24	4 30 58.36	2.0324	N. 17 8 0.2	5.698

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 17.					THURSDAY 19.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	4 30 58.36	2.0324	N.17 8 0.2	5.698	0	6 11 32.11	2.1522	N.20 6 24.2	1.553
1	4 33 0.38	2.0351	17 13 39.9	5.625	1	6 13 41.30	2.1541	20 7 54.4	1.455
2	4 35 2.57	2.0378	17 19 15.2	5.550	2	6 15 50.60	2.1560	20 9 18.8	1.358
3	4 37 4.92	2.0405	17 24 45.9	5.473	3	6 18 0.02	2.1579	20 10 37.3	1.260
4	4 39 7.43	2.0432	17 30 12.0	5.398	4	6 20 9.55	2.1598	20 11 50.0	1.163
5	4 41 10.10	2.0458	17 35 33.6	5.321	5	6 22 19.20	2.1617	20 12 56.8	1.064
6	4 43 12.93	2.0485	17 40 50.5	5.243	6	6 24 28.95	2.1634	20 13 57.7	0.965
7	4 45 15.92	2.0513	17 46 2.8	5.166	7	6 26 38.81	2.1652	20 14 52.6	0.866
8	4 47 19.08	2.0540	17 51 10.4	5.087	8	6 28 48.77	2.1669	20 15 41.6	0.768
9	4 49 22.40	2.0567	17 56 13.2	5.008	9	6 30 58.84	2.1687	20 16 24.7	0.668
10	4 51 25.88	2.0594	18 1 11.4	4.929	10	6 33 9.01	2.1703	20 17 1.8	0.568
11	4 53 29.53	2.0622	18 6 4.7	4.848	11	6 35 19.28	2.1719	20 17 32.9	0.468
12	4 55 33.34	2.0648	18 10 53.2	4.768	12	6 37 29.64	2.1735	20 17 58.0	0.368
13	4 57 37.31	2.0675	18 15 36.9	4.688	13	6 39 40.10	2.1750	20 18 17.1	0.268
14	4 59 41.44	2.0701	18 20 15.7	4.606	14	6 41 50.64	2.1765	20 18 30.2	0.168
15	5 1 45.72	2.0728	18 24 49.6	4.523	15	6 44 1.28	2.1780	20 18 37.2	0.067
16	5 3 50.17	2.0755	18 29 18.5	4.441	16	6 46 12.00	2.1794	20 18 38.2	0.034
17	5 5 54.78	2.0782	18 33 42.5	4.358	17	6 48 22.81	2.1808	20 18 33.1	0.135
18	5 7 59.55	2.0808	18 38 1.5	4.274	18	6 50 33.70	2.1822	20 18 22.0	0.237
19	5 10 4.48	2.0834	18 42 15.4	4.189	19	6 52 44.67	2.1834	20 18 4.7	0.339
20	5 12 9.56	2.0860	18 46 24.3	4.106	20	6 54 55.71	2.1847	20 17 41.3	0.440
21	5 14 14.80	2.0887	18 50 28.1	4.021	21	6 57 6.83	2.1859	20 17 11.9	0.542
22	5 16 20.20	2.0913	18 54 26.8	3.935	22	6 59 18.02	2.1871	20 16 36.3	0.644
23	5 18 25.76	2.0939	N.18 58 20.3	3.848	23	7 1 29.28	2.1883	N.20 15 54.6	0.747
	WEDNESDAY 18.					FRIDAY 20.			
0	5 20 31.47	2.0964	N.19 2 8.6	3.762	0	7 3 40.61	2.1893	N.20 15 6.7	0.849
1	5 22 37.33	2.0990	19 5 51.7	3.675	1	7 5 52.00	2.1903	20 14 12.7	0.952
2	5 24 43.35	2.1016	19 9 29.6	3.588	2	7 8 3.45	2.1913	20 13 12.5	1.054
3	5 26 49.52	2.1041	19 13 2.3	3.500	3	7 10 14.96	2.1923	20 12 6.2	1.156
4	5 28 55.84	2.1066	19 16 29.6	3.411	4	7 12 26.53	2.1933	20 10 53.8	1.258
5	5 31 2.31	2.1091	19 19 51.6	3.323	5	7 14 38.15	2.1942	20 9 35.2	1.362
6	5 33 8.93	2.1116	19 23 8.3	3.233	6	7 16 49.83	2.1950	20 8 10.4	1.465
7	5 35 15.70	2.1141	19 26 19.6	3.143	7	7 19 1.55	2.1957	20 6 39.4	1.568
8	5 37 22.62	2.1165	19 29 25.5	3.053	8	7 21 13.31	2.1964	20 5 2.3	1.670
9	5 39 29.68	2.1189	19 32 26.0	2.963	9	7 23 25.12	2.1972	20 3 19.0	1.773
10	5 41 36.89	2.1213	19 35 21.0	2.871	10	7 25 36.97	2.1978	20 1 29.5	1.876
11	5 43 44.24	2.1237	19 38 10.5	2.780	11	7 27 48.86	2.1985	19 59 33.9	1.978
12	5 45 51.73	2.1260	19 40 54.6	2.688	12	7 30 0.79	2.1991	19 57 32.2	2.081
13	5 47 59.36	2.1283	19 43 33.1	2.595	13	7 32 12.75	2.1996	19 55 24.2	2.184
14	5 50 7.13	2.1307	19 46 6.0	2.502	14	7 34 24.74	2.2001	19 53 10.1	2.287
15	5 52 15.04	2.1329	19 48 33.3	2.409	15	7 36 36.76	2.2005	19 50 49.8	2.390
16	5 54 23.08	2.1352	19 50 55.1	2.316	16	7 38 48.80	2.2008	19 48 23.3	2.493
17	5 56 31.26	2.1374	19 53 11.2	2.221	17	7 41 0.86	2.2013	19 45 50.7	2.595
18	5 58 39.57	2.1396	19 55 21.6	2.126	18	7 43 12.95	2.2016	19 43 11.9	2.698
19	6 0 48.01	2.1418	19 57 26.3	2.032	19	7 45 25.05	2.2018	19 40 27.0	2.800
20	6 2 56.58	2.1439	19 59 25.4	1.937	20	7 47 37.17	2.2021	19 37 35.9	2.903
21	6 5 5.28	2.1460	20 1 18.7	1.841	21	7 49 49.30	2.2023	19 34 38.7	3.004
22	6 7 14.10	2.1480	20 3 6.3	1.745	22	7 52 1.44	2.2024	19 31 35.4	3.107
23	6 9 23.04	2.1501	20 4 48.1	1.649	23	7 54 13.59	2.2025	19 28 25.9	3.208
24	6 11 32.11	2.1522	N.20 6 24.2	1.553	24	7 56 25.74	2.2026	N.19 25 10.4	3.310

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 21.					MONDAY 23.				
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	7 56 25.74	2.2026	N.19 25 10.4	3.310	0	9 41 35.79	2.1698	N.14 54 23.5	7.811
1	7 58 37.90	2.2027	19 21 48.7	3.413	1	9 43 45.94	2.1686	14 46 32.4	7.893
2	8 0 50.06	2.2027	19 18 20.9	3.514	2	9 45 56.02	2.1674	14 38 36.4	7.974
3	8 3 2.22	2.2026	19 14 47.0	3.616	3	9 48 6.03	2.1663	14 30 35.5	8.054
4	8 5 14.37	2.2025	19 11 7.0	3.717	4	9 50 15.97	2.1651	14 22 29.9	8.133
5	8 7 26.52	2.2023	19 7 21.0	3.818	5	9 52 25.84	2.1640	14 14 19.5	8.213
6	8 9 38.65	2.2022	19 3 28.9	3.919	6	9 54 35.65	2.1629	14 6 4.4	8.291
7	8 11 50.78	2.2020	18 59 30.7	4.019	7	9 56 45.39	2.1618	13 57 44.6	8.368
8	8 14 2.89	2.2018	18 55 26.6	4.119	8	9 58 55.06	2.1606	13 49 20.2	8.445
9	8 16 14.99	2.2015	18 51 16.4	4.219	9	10 1 4.66	2.1594	13 40 51.2	8.521
10	8 18 27.07	2.2012	18 47 0.3	4.318	10	10 3 14.19	2.1583	13 32 17.7	8.597
11	8 20 39.13	2.2008	18 42 38.2	4.418	11	10 5 23.66	2.1573	13 23 39.6	8.672
12	8 22 51.17	2.2005	18 38 10.1	4.518	12	10 7 33.06	2.1561	13 14 57.1	8.745
13	8 25 3.19	2.2001	18 33 36.1	4.617	13	10 9 42.39	2.1549	13 6 10.2	8.818
14	8 27 15.18	2.1996	18 28 56.1	4.715	14	10 11 51.65	2.1538	12 57 18.9	8.892
15	8 29 27.14	2.1991	18 24 10.3	4.813	15	10 14 0.85	2.1528	12 48 23.2	8.964
16	8 31 39.07	2.1986	18 19 18.5	4.912	16	10 16 9.98	2.1516	12 39 23.2	9.035
17	8 33 50.97	2.1981	18 14 20.9	5.008	17	10 18 19.04	2.1505	12 30 19.0	9.105
18	8 36 2.84	2.1975	18 9 17.5	5.106	18	10 20 28.04	2.1494	12 21 10.6	9.174
19	8 38 14.67	2.1968	18 4 8.2	5.203	19	10 22 36.97	2.1484	12 11 58.1	9.243
20	8 40 26.46	2.1962	17 58 53.1	5.300	20	10 24 45.85	2.1474	12 2 41.4	9.312
21	8 42 38.21	2.1956	17 53 32.2	5.396	21	10 26 54.66	2.1463	11 53 20.7	9.378
22	8 44 49.93	2.1949	17 48 5.6	5.492	22	10 29 3.40	2.1453	11 43 56.0	9.445
23	8 47 1.60	2.1942	N.17 42 33.2	5.587	23	10 31 12.09	2.1443	N.11 34 27.3	9.512
SUNDAY 22.					TUESDAY 24.				
0	8 49 13.23	2.1934	N.17 36 55.2	5.681	0	10 33 20.71	2.1433	N.11 24 54.6	9.577
1	8 51 24.81	2.1927	17 31 11.5	5.776	1	10 35 29.28	2.1423	11 15 18.1	9.641
2	8 53 36.35	2.1919	17 25 22.1	5.871	2	10 37 37.79	2.1413	11 5 37.7	9.704
3	8 55 47.84	2.1911	17 19 27.0	5.964	3	10 39 46.24	2.1403	10 55 53.6	9.767
4	8 57 59.28	2.1902	17 13 26.4	6.057	4	10 41 54.63	2.1394	10 46 5.7	9.828
5	9 0 10.66	2.1893	17 7 20.2	6.149	5	10 44 2.97	2.1386	10 36 14.2	9.889
6	9 2 22.00	2.1885	17 1 8.5	6.242	6	10 46 11.26	2.1378	10 26 19.0	9.950
7	9 4 33.28	2.1875	16 54 51.2	6.334	7	10 48 19.50	2.1369	10 16 20.2	10.009
8	9 6 44.50	2.1866	16 48 28.4	6.425	8	10 50 27.69	2.1360	10 6 17.9	10.068
9	9 8 55.67	2.1857	16 42 0.2	6.515	9	10 52 35.82	2.1352	9 56 12.1	10.125
10	9 11 6.78	2.1847	16 35 26.6	6.606	10	10 54 43.91	2.1344	9 46 2.9	10.183
11	9 13 17.83	2.1838	16 28 47.5	6.696	11	10 56 51.95	2.1337	9 35 50.2	10.238
12	9 15 28.83	2.1828	16 22 3.1	6.785	12	10 58 59.95	2.1329	9 25 34.3	10.293
13	9 17 39.76	2.1817	16 15 13.3	6.873	13	11 1 7.90	2.1323	9 15 15.1	10.348
14	9 19 50.63	2.1807	16 8 18.3	6.962	14	11 3 15.82	2.1316	9 4 52.6	10.402
15	9 22 1.44	2.1797	16 1 17.9	7.049	15	11 5 23.69	2.1308	8 54 26.9	10.454
16	9 24 12.19	2.1786	15 54 12.4	7.136	16	11 7 31.52	2.1303	8 43 58.1	10.506
17	9 26 22.87	2.1775	15 47 1.6	7.223	17	11 9 39.32	2.1298	8 33 26.2	10.557
18	9 28 33.49	2.1764	15 39 45.7	7.308	18	11 11 47.09	2.1292	8 22 51.3	10.607
19	9 30 44.04	2.1753	15 32 24.6	7.394	19	11 13 54.82	2.1286	8 12 13.4	10.657
20	9 32 54.52	2.1742	15 24 58.4	7.478	20	11 16 2.52	2.1281	8 1 32.5	10.705
21	9 35 4.94	2.1731	15 17 27.2	7.562	21	11 18 10.19	2.1276	7 50 48.8	10.752
22	9 37 15.29	2.1719	15 9 51.0	7.646	22	11 20 17.83	2.1272	7 40 2.3	10.798
23	9 39 25.57	2.1708	15 2 9.7	7.729	23	11 22 25.45	2.1268	7 29 13.0	10.844
24	9 41 35.79	2.1698	N.14 54 23.5	7.811	24	11 24 33.04	2.1263	N. 7 18 21.0	10.889

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 25.					**FRIDAY 27.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	11 24 33.04	2.1263	N. 7 18 21.0	10.889	0	13 6 58.78	2.1593	S. 1 58 1.7	11.914
1	11 26 40.61	2.1261	7 7 26.3	10.933	1	13 9 8.39	2.1612	2 9 56.5	11.910
2	11 28 48.17	2.1258	6 56 29.1	10.976	2	13 11 18.12	2.1632	2 21 50.9	11.905
3	11 30 55.71	2.1255	6 45 29.2	11.018	3	13 13 27.97	2.1652	2 33 45.1	11.900
4	11 33 3.23	2.1253	6 34 26.9	11.059	4	13 15 37.94	2.1672	2 45 38.9	11.893
5	11 35 10.74	2.1252	6 23 22.1	11.100	5	13 17 48.03	2.1693	2 57 32.3	11.885
6	11 37 18.25	2.1250	6 12 14.9	11.138	6	13 19 58.25	2.1713	3 9 25.1	11.876
7	11 39 25.74	2.1248	6 1 5.5	11.177	7	13 22 8.59	2.1735	3 21 17.4	11.866
8	11 41 33.23	2.1248	5 49 53.7	11.215	8	13 24 19.07	2.1758	3 33 9.0	11.853
9	11 43 40.72	2.1248	5 38 39.7	11.252	9	13 26 29.69	2.1781	3 44 59.8	11.841
10	11 45 48.21	2.1248	5 27 23.5	11.287	10	13 28 40.44	2.1804	3 56 49.9	11.828
11	11 47 55.69	2.1248	5 16 5.3	11.321	11	13 30 51.34	2.1828	4 8 39.2	11.813
12	11 50 3.18	2.1249	5 4 45.0	11.355	12	13 33 2.38	2.1853	4 20 27.5	11.798
13	11 52 10.68	2.1251	4 53 22.7	11.388	13	13 35 13.57	2.1878	4 32 14.9	11.781
14	11 54 18.19	2.1252	4 41 58.4	11.420	14	13 37 24.91	2.1903	4 44 1.2	11.763
15	11 56 25.70	2.1254	4 30 32.3	11.450	15	13 39 36.40	2.1929	4 55 46.4	11.743
16	11 58 33.24	2.1257	4 19 4.4	11.481	16	13 41 48.06	2.1956	5 7 30.4	11.723
17	12 0 40.79	2.1260	4 7 34.6	11.510	17	13 43 59.87	2.1982	5 19 13.1	11.701
18	12 2 48.36	2.1263	3 56 3.2	11.538	18	13 46 11.84	2.2009	5 30 54.5	11.678
19	12 4 55.95	2.1267	3 44 30.1	11.565	19	13 48 23.98	2.2038	5 42 34.5	11.655
20	12 7 3.57	2.1273	3 32 55.4	11.592	20	13 50 36.29	2.2066	5 54 13.1	11.630
21	12 9 11.21	2.1277	3 21 19.1	11.617	21	13 52 48.77	2.2095	6 5 50.1	11.603
22	12 11 18.89	2.1283	3 9 41.4	11.640	22	13 55 1.43	2.2125	6 17 25.5	11.576
23	12 13 26.60	2.1288	N. 2 58 2.3	11.663	23	13 57 14.27	2.2154	S. 6 28 59.2	11.547
	THURSDAY 26.					**SATURDAY 28.**			
0	12 15 34.35	2.1295	N. 2 46 21.8	11.686	0	13 59 27.28	2.2184	S. 6 40 31.1	11.517
1	12 17 42.14	2.1302	2 34 40.0	11.707	1	14 1 40.48	2.2215	6 52 1.2	11.487
2	12 19 49.97	2.1308	2 22 57.0	11.727	2	14 3 53.86	2.2246	7 3 29.5	11.455
3	12 21 57.84	2.1316	2 11 12.8	11.747	3	14 6 7.43	2.2278	7 14 55.8	11.421
4	12 24 5.76	2.1324	1 59 27.4	11.765	4	14 8 21.20	2.2311	7 26 20.0	11.387
5	12 26 13.73	2.1333	1 47 41.0	11.782	5	14 10 35.16	2.2343	7 37 42.2	11.351
6	12 28 21.76	2.1343	1 35 53.6	11.798	6	14 12 49.31	2.2375	7 49 2.1	11.313
7	12 30 29.84	2.1352	1 24 5.2	11.813	7	14 15 3.66	2.2409	8 0 19.8	11.276
8	12 32 37.98	2.1363	1 12 16.0	11.828	8	14 17 18.22	2.2443	8 11 35.2	11.236
9	12 34 46.19	2.1373	1 0 25.9	11.842	9	14 19 32.98	2.2478	8 22 48.1	11.195
10	12 36 54.46	2.1384	0 48 35.0	11.853	10	14 21 47.95	2.2512	8 33 58.6	11.154
11	12 39 2.80	2.1395	0 36 43.5	11.864	11	14 24 3.12	2.2547	8 45 6.6	11.111
12	12 41 11.20	2.1407	0 24 51.3	11.874	12	14 26 18.51	2.2583	8 56 11.9	11.066
13	12 43 19.68	2.1420	0 12 58.6	11.883	13	14 28 34.11	2.2618	9 7 14.5	11.021
14	12 45 28.24	2.1434	N. 0 1 5.3	11.892	14	14 30 49.93	2.2654	9 18 14.4	10.974
15	12 47 36.89	2.1448	S. 0 10 48.4	11.898	15	14 33 5.96	2.2691	9 29 11.4	10.925
16	12 49 45.61	2.1461	0 22 42.5	11.904	16	14 35 22.22	2.2728	9 40 5.4	10.876
17	12 51 54.42	2.1476	0 34 36.9	11.909	17	14 37 38.70	2.2765	9 50 56.5	10.826
18	12 54 3.32	2.1492	0 46 31.6	11.913	18	14 39 55.40	2.2803	10 1 44.5	10.774
19	12 56 12.32	2.1508	0 58 26.5	11.916	19	14 42 12.34	2.2842	10 12 29.4	10.721
20	12 58 21.41	2.1523	1 10 21.5	11.918	20	14 44 29.50	2.2879	10 23 11.0	10.667
21	13 0 30.60	2.1540	1 22 16.6	11.918	21	14 46 46.89	2.2918	10 33 49.4	10.612
22	13 2 39.89	2.1557	1 34 11.7	11.918	22	14 49 4.51	2.2957	10 44 24.4	10.554
23	13 4 49.28	2.1574	1 46 6.8	11.917	23	14 51 22.37	2.2996	10 54 55.9	10.496
24	13 6 58.78	2.1593	S. 1 58 1.7	11.914	24	14 53 40.46	2.3035	S. 11 5 23.9	10.437

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 29.			
	h m s	s	° ′ ″	″
0	14 53 40.46	2.3035	S. 11 5 23.9	10.437
1	14 55 58.79	2.3075	11 15 48.3	10.376
2	14 58 17.36	2.3115	11 26 9.0	10.314
3	15 0 36.17	2.3155	11 36 26.0	10.251
4	15 2 55.22	2.3196	11 46 39.1	10.187
5	15 5 14.52	2.3238	11 56 48.4	10.121
6	15 7 34.07	2.3278	12 6 53.6	10.053
7	15 9 53.86	2.3319	12 16 54.8	9.986
8	15 12 13.90	2.3360	12 26 51.9	9.916
9	15 14 34.18	2.3402	12 36 44.7	9.845
10	15 16 54.72	2.3443	12 46 33.3	9.773
11	15 19 15.50	2.3485	12 56 17.5	9.699
12	15 21 36.54	2.3528	13 5 57.2	9.625
13	15 23 57.83	2.3569	13 15 32.5	9.549
14	15 26 19.37	2.3611	13 25 3.1	9.472
15	15 28 41.16	2.3653	13 34 29.1	9.393
16	15 31 3.21	2.3696	13 43 50.3	9.313
17	15 33 25.51	2.3738	13 53 6.7	9.233
18	15 35 48.06	2.3780	14 2 18.2	9.150
19	15 38 10.87	2.3823	14 11 24.7	9.067
20	15 40 33.94	2.3866	14 20 26.2	8.983
21	15 42 57.26	2.3908	14 29 22.6	8.896
22	15 45 20.83	2.3950	14 38 13.7	8.808
23	15 47 44.66	2.3993	S. 14 46 59.6	8.719
	MONDAY 30.			
0	15 50 8.74	2.4035	S. 14 55 40.0	8.629
1	15 52 33.08	2.4077	15 4 15.1	8.539
2	15 54 57.66	2.4118	15 12 44.7	8.447
3	15 57 22.50	2.4162	15 21 8.7	8.353
4	15 59 47.60	2.4203	15 29 27.0	8.258
5	16 2 12.94	2.4244	15 37 39.6	8.162
6	16 4 38.53	2.4286	15 45 46.4	8.064
7	16 7 4.37	2.4328	15 53 47.3	7.966
8	16 9 30.46	2.4368	16 1 42.3	7.867
9	16 11 56.79	2.4409	16 9 31.3	7.767
10	16 14 23.37	2.4450	16 17 14.3	7.664
11	16 16 50.19	2.4491	16 24 51.0	7.560
12	16 19 17.26	2.4532	16 32 21.5	7.456
13	16 21 44.57	2.4571	16 39 45.7	7.351
14	16 24 12.11	2.4610	16 47 3.6	7.244
15	16 26 39.89	2.4649	16 54 15.0	7.137
16	16 29 7.90	2.4688	17 1 20.0	7.028
17	16 31 36.14	2.4726	17 8 18.3	6.917
18	16 34 4.61	2.4764	17 15 10.0	6.806
19	16 36 33.31	2.4802	17 21 55.0	6.694
20	16 39 2.23	2.4839	17 28 33.3	6.581
21	16 41 31.38	2.4876	17 35 4.7	6.467
22	16 44 0.74	2.4912	17 41 29.3	6.352
23	16 46 30.32	2.4948	17 47 46.9	6.234
24	16 49 0.11	2.4983	S. 17 53 57.4	6.117

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 31.			
	h m s	s	° ′ ″	″
0	16 49 0.11	2.4983	S. 17 53 57.4	6.117
1	16 51 30.11	2.5018	18 0 0.9	5.999
2	16 54 0.32	2.5052	18 5 57.3	5.879
3	16 56 30.73	2.5085	18 11 46.4	5.759
4	16 59 1.34	2.5118	18 17 28.4	5.638
5	17 1 32.14	2.5149	18 23 3.0	5.515
6	17 4 3.13	2.5181	18 28 30.2	5.392
7	17 6 34.31	2.5213	18 33 50.0	5.268
8	17 9 5.68	2.5243	18 39 2.4	5.143
9	17 11 37.23	2.5273	18 44 7.2	5.017
10	17 14 8.95	2.5301	18 49 4.4	4.891
11	17 16 40.84	2.5329	18 53 54.1	4.763
12	17 19 12.90	2.5357	18 58 36.0	4.634
13	17 21 45.12	2.5383	19 3 10.2	4.506
14	17 24 17.50	2.5410	19 7 36.7	4.376
15	17 26 50.04	2.5435	19 11 55.3	4.244
16	17 29 22.72	2.5458	19 16 6.1	4.114
17	17 31 55.54	2.5482	19 20 9.0	3.982
18	17 34 28.50	2.5505	19 24 3.9	3.849
19	17 37 1.60	2.5527	19 27 50.9	3.716
20	17 39 34.82	2.5547	19 31 29.8	3.582
21	17 42 8.16	2.5567	19 35 0.7	3.448
22	17 44 41.62	2.5586	19 38 23.5	3.313
23	17 47 15.19	2.5604	S. 19 41 38.2	3.176
	WEDNESDAY, AUGUST 1.			
0	17 49 48.87	2.5622	S. 19 44 44.6	3.039

PHASES OF THE MOON.

			d	h	m
○	Full Moon	July	5	16	27.5
☾	Last Quarter		12	22	12.8
●	New Moon		21	0	59.1
☽	First Quarter		28	7	56.3

			d	h
☾	Perigee	July	3	23.3
☾	Apogee		16	0.1
☾	Perigee		31	18.8

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIʰ	P. L. of Diff.	VIʰ	P. L. of Diff.	IXʰ	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Regulus	W.	65 18 33	2220	67 6 31	2208	68 54 47	2197	70 43 19	2186
	α Aquilæ	E.	84 36 15	2771	83 1 9	2765	81 25 55	2760	79 50 34	2754
2	Regulus	W.	79 49 53	2137	81 39 55	2129	83 30 10	2120	85 20 38	2113
	Spica	W.	26 46 58	2289	28 33 13	2264	30 20 6	2242	32 7 32	2222
	α Aquilæ	E.	71 53 1	2757	70 17 36	2762	68 42 18	2771	67 7 12	2782
	Fomalhaut	E.	105 4 55	2403	103 21 25	2391	101 37 37	2379	99 53 32	2368
	SATURN	E.	116 42 41	2135	114 52 35	2126	113 2 16	2118	111 11 44	2110
3	Regulus	W.	94 35 39	2082	96 27 6	2077	98 18 41	2073	100 10 22	2069
	Spica	W.	41 10 58	2153	43 0 37	2143	44 50 30	2135	46 40 36	2128
	α Aquilæ	E.	59 16 12	2874	57 43 20	2903	56 11 5	2935	54 39 31	2973
	Fomalhaut	E.	91 9 45	2331	89 24 30	2326	87 39 8	2322	85 53 41	2320
	SATURN	E.	101 56 18	2079	100 4 46	2074	98 13 6	2069	96 21 19	2066
	α Pegasi	E.	106 8 27	2459	104 26 16	2449	102 43 51	2440	101 1 13	2431
4	Regulus	W.	109 29 51	2061	111 21 51	2061	113 13 50	2061	115 5 49	2063
	Spica	W.	55 53 22	2106	57 44 12	2104	59 35 5	2103	61 25 59	2103
	α Aquilæ	E.	47 15 39	3251	45 50 30	3330	44 26 53	3419	43 4 58	3521
	Fomalhaut	E.	77 6 5	2325	75 20 42	2330	73 35 25	2336	71 50 18	2343
	SATURN	E.	87 1 21	2057	85 9 15	2057	83 17 10	2057	81 25 5	2059
	α Pegasi	E.	92 25 45	2411	90 42 26	2410	88 59 6	2412	87 15 48	2415
5	Spica	W.	70 40 6	2115	72 30 42	2120	74 21 11	2125	76 11 32	2131
	Fomalhaut	E.	63 8 2	2402	61 24 30	2419	59 41 24	2438	57 58 44	2459
	SATURN	E.	72 5 35	2075	70 13 58	2081	68 22 30	2087	66 31 11	2094
	α Pegasi	E.	78 40 54	2448	76 58 28	2459	75 16 17	2472	73 34 24	2486
	α Arietis	E.	122 1 12	2291	120 15 0	2289	118 28 45	2288	116 42 28	2289
6	Spica	W.	85 20 36	2172	87 9 45	2182	88 58 39	2193	90 47 17	2205
	Antares	W.	39 52 13	2274	41 38 50	2276	43 25 25	2279	45 11 56	2283
	Fomalhaut	E.	49 33 50	2602	47 54 57	2640	46 16 56	2681	44 39 51	2727
	SATURN	E.	57 17 28	2136	55 27 24	2147	53 37 36	2157	51 48 4	2168
	α Pegasi	E.	65 10 37	2580	63 31 15	2606	61 52 28	2632	60 14 17	2661
	α Arietis	E.	107 51 49	2309	106 6 2	2316	104 20 26	2324	102 35 2	2334
7	Spica	W.	99 45 51	2270	101 32 34	2285	103 18 55	2300	105 4 54	2316
	Antares	W.	54 2 20	2322	55 47 47	2333	57 32 58	2344	59 17 53	2356
	SATURN	E.	42 44 54	2233	40 57 16	2247	39 9 59	2262	37 23 3	2277
	α Pegasi	E.	52 14 8	2845	50 40 39	2891	49 8 9	2942	47 36 43	2997
	α Arietis	E.	93 51 44	2391	92 7 57	2405	90 24 30	2420	88 41 24	2435
8	Antares	W.	67 57 46	2426	69 40 43	2442	71 23 18	2458	73 5 30	2474
	α Arietis	E.	80 11 35	2521	78 30 51	2540	76 50 34	2559	75 10 43	2579
	Aldebaran	E.	111 56 35	2362	110 12 5	2379	108 28 0	2396	106 44 19	2413
9	Antares	W.	81 30 46	2559	83 10 38	2576	84 50 6	2593	86 29 10	2611
	α Aquilæ	W.	41 56 39	3947	43 9 11	3878	44 22 53	3816	45 37 39	3761
	α Arietis	E.	66 58 30	2687	65 21 32	2710	63 45 4	2733	62 9 8	2756
	Aldebaran	E.	98 12 6	2501	96 30 54	2520	94 50 8	2537	93 9 46	2555
10	Antares	W.	94 38 30	2700	96 15 10	2718	97 51 26	2735	99 27 19	2752

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	XVIII^{h}	P. L. of Diff.	XXI^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Regulus	W.	72 32 8	2176	74 21 12	2166	76 10 31	2156	78 0 5	2147
	α Aquilæ	E.	78 15 6	2751	76 39 34	2751	75 4 2	2751	73 28 30	2753
2	Regulus	W.	87 11 17	2105	89 2 8	2099	90 53 9	2092	92 44 20	2087
	Spica	W.	33 55 27	2204	35 43 48	2189	37 32 32	2176	39 21 36	2164
	α Aquilæ	E.	65 32 20	2794	63 57 44	2809	62 23 28	2828	60 49 36	2849
	Fomalhaut	E.	98 9 11	2359	96 24 37	2350	94 39 50	2342	92 54 52	2336
	SATURN	E.	109 20 59	2103	107 30 4	2096	105 38 58	2089	103 47 42	2084
3	Regulus	W.	102 2 9	2066	103 54 0	2064	105 45 54	2062	107 37 51	2061
	Spica	W.	48 30 53	2121	50 21 20	2116	52 11 54	2112	54 2 35	2108
	α Aquilæ	E.	53 8 44	3016	51 38 51	3065	50 9 58	3119	48 42 12	3180
	Fomalhaut	E.	84 8 10	2319	82 22 38	2318	80 37 5	2319	78 51 33	2322
	SATURN	E.	94 29 27	2063	92 37 30	2061	90 45 30	2058	88 53 26	2057
	α Pegasi	E.	99 18 23	2424	97 35 23	2419	95 52 16	2415	94 9 3	2412
4	Regulus	W.	116 57 45	2065	118 49 38	2068	120 41 26	2072	122 33 9	2075
	Spica	W.	63 16 54	2104	65 7 47	2106	66 58 37	2108	68 49 24	2111
	α Aquilæ	E.	41 44 57	3635	40 27 1	3767	39 11 24	3916	37 58 20	4085
	Fomalhaut	E.	70 5 21	2352	68 20 37	2362	66 36 7	2374	64 51 55	2387
	SATURN	E.	79 33 3	2061	77 41 4	2064	75 49 9	2067	73 57 19	2071
	α Pegasi	E.	85 32 34	2419	83 49 26	2424	82 6 25	2431	80 23 34	2439
5	Spica	W.	78 1 44	2138	79 51 45	2145	81 41 35	2154	83 31 12	2163
	Fomalhaut	E.	56 16 33	2482	54 34 55	2508	52 53 53	2536	51 13 30	2567
	SATURN	E.	64 40 2	2101	62 49 5	2109	60 58 19	2118	59 7 47	2127
	α Pegasi	E.	71 52 50	2501	70 11 38	2519	68 30 51	2538	66 50 30	2558
	α Arietis	E.	114 56 12	2291	113 9 58	2294	111 23 49	2298	109 37 45	2303
6	Spica	W.	92 35 37	2217	94 23 39	2229	96 11 23	2243	97 58 47	2256
	Antares	W.	46 58 20	2289	48 44 36	2295	50 30 43	2303	52 16 38	2312
	Fomalhaut	E.	43 3 47	2779	41 28 51	2835	39 55 8	2898	38 22 46	2968
	SATURN	E.	49 58 48	2180	48 9 51	2192	46 21 12	2206	44 32 53	2219
	α Pegasi	E.	58 36 45	2692	56 59 55	2726	55 23 50	2763	53 48 33	2802
	α Arietis	E.	100 49 51	2344	99 4 55	2355	97 20 14	2366	95 35 50	2378
7	Spica	W.	106 50 30	2333	108 35 42	2348	110 20 31	2366	112 4 55	2383
	Antares	W.	61 2 31	2369	62 46 50	2383	64 30 49	2397	66 14 28	2412
	SATURN	E.	35 36 30	2293	33 50 19	2309	32 4 32	2325	30 19 9	2342
	α Pegasi	E.	46 6 26	3056	44 37 22	3121	43 9 38	3193	41 43 20	3270
	α Arietis	E.	86 58 39	2451	85 16 17	2468	83 34 19	2485	81 52 45	2502
8	Antares	W.	74 47 20	2490	76 28 47	2507	78 9 50	2524	79 50 30	2541
	α Arietis	E.	73 31 19	2599	71 52 23	2620	70 13 56	2642	68 35 58	2664
	Aldebaran	E.	105 1 3	2431	103 18 12	2448	101 35 45	2465	99 53 43	2483
9	Antares	W.	88 7 50	2629	89 46 5	2646	91 23 57	2664	93 1 25	2681
	α Aquilæ	W.	46 53 22	3714	48 9 54	3674	49 27 9	3639	50 45 1	3608
	α Arietis	E.	60 33 43	2781	58 58 50	2807	57 24 31	2833	55 50 45	2859
	Aldebaran	E.	91 29 49	2572	89 50 16	2591	88 11 8	2608	86 32 24	2625
10	Antares	W.	101 2 50	2770	102 37 57	2788	104 12 41	2805	105 47 3	2821

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
10	α Aquilæ	W.	52 3 27	3583	53 22 20	3561	54 41 37	3543	56 1 14	3527
	α Arietis	E.	54 17 33	2886	52 44 56	2914	51 12 55	2943	49 41 31	2973
	Aldebaran	E.	84 54 3	2643	83 16 7	2660	81 38 34	2677	80 1 23	2695
	JUPITER	E.	102 14 39	2725	100 38 32	2743	99 2 49	2760	97 27 29	2777
	SUN	E.	123 54 36	2976	122 23 53	2995	120 53 34	3013	119 23 37	3030
11	Antares	W.	107 21 3	2838	108 54 41	2855	110 27 58	2872	112 0 53	2887
	α Aquilæ	W.	62 42 46	3484	64 3 28	3480	65 24 14	3478	66 45 3	3477
	Aldebaran	E.	72 1 7	2776	70 26 7	2792	68 51 28	2806	67 17 8	2821
	JUPITER	E.	89 36 19	2860	88 3 9	2875	86 30 18	2891	84 57 47	2906
	SUN	E.	111 59 21	3118	110 31 34	3134	109 4 6	3151	107 36 58	3167
12	α Aquilæ	W.	73 28 59	3487	74 49 38	3490	76 10 13	3495	77 30 43	3500
	Fomalhaut	W.	38 54 9	3563	40 13 24	3535	41 33 10	3509	42 53 24	3488
	SATURN	W.	23 59 44	2884	25 32 23	2896	27 4 47	2908	28 36 56	2920
	Aldebaran	E.	59 30 11	2890	57 57 40	2903	56 25 25	2915	54 53 25	2927
	JUPITER	E.	77 19 53	2977	75 49 11	2989	74 18 44	3001	72 48 33	3014
	SUN	E.	100 25 55	3241	99 0 34	3255	97 35 30	3268	96 10 41	3281
13	α Aquilæ	W.	84 11 40	3531	85 31 30	3537	86 51 13	3545	88 10 48	3552
	Fomalhaut	W.	49 39 35	3416	51 1 33	3408	52 23 40	3400	53 45 56	3393
	α Pegasi	W.	37 20 20	4074	38 30 47	4012	39 42 15	3957	40 54 37	3909
	SATURN	W.	36 14 10	2971	37 44 59	2980	39 15 36	2989	40 46 3	2997
	Aldebaran	E.	47 17 3	2980	45 46 25	2989	44 15 59	2998	42 45 44	3006
	JUPITER	E.	65 21 16	3068	63 52 28	3078	62 23 51	3087	60 55 26	3096
	SUN	E.	89 10 9	3338	87 46 41	3348	86 23 25	3357	85 0 19	3366
14	α Aquilæ	W.	94 46 36	3592	96 5 19	3600	97 23 53	3610	98 42 17	3619
	Fomalhaut	W.	60 39 0	3369	62 1 52	3365	63 24 48	3362	64 47 47	3359
	SATURN	W.	48 15 56	3030	49 45 31	3036	51 14 58	3041	52 44 20	3046
	α Pegasi	W.	47 7 12	3732	48 23 25	3707	49 40 5	3683	50 57 11	3662
	Aldebaran	E.	35 16 53	3041	33 47 32	3047	32 18 18	3052	30 49 10	3057
	JUPITER	E.	53 35 48	3133	52 8 18	3139	50 40 56	3145	49 13 41	3149
	SUN	E.	78 7 14	3403	76 45 2	3409	75 22 56	3415	74 0 57	3420
15	α Aquilæ	W.	105 11 43	3669	106 29 3	3680	107 46 12	3692	109 3 8	3704
	Fomalhaut	W.	71 43 31	3347	73 6 48	3345	74 30 8	3342	75 53 31	3340
	SATURN	W.	60 9 56	3061	61 38 53	3063	63 7 47	3065	64 36 40	3066
	α Pegasi	W.	57 27 49	3577	58 46 49	3564	60 6 3	3550	61 25 32	3538
	Aldebaran	E.	23 24 48	3074	21 56 7	3076	20 27 29	3078	18 58 53	3080
	JUPITER	E.	41 58 46	3170	40 32 1	3173	39 5 20	3176	37 38 42	3178
	SUN	E.	67 12 14	3438	65 50 40	3440	64 29 9	3441	63 7 39	3443
16	Fomalhaut	W.	82 51 6	3327	84 14 46	3325	85 38 29	3322	87 2 15	3319
	SATURN	W.	72 0 55	3065	73 29 48	3063	74 58 43	3061	76 27 41	3059
	α Pegasi	W.	68 6 5	3486	69 26 45	3477	70 47 35	3468	72 8 36	3459
	JUPITER	E.	30 26 7	3187	28 59 42	3188	27 33 18	3189	26 6 56	3191
	SUN	E.	56 20 21	3442	54 58 52	3441	53 37 22	3438	52 15 49	3436
17	Fomalhaut	W.	94 1 59	3304	95 26 6	3302	96 50 15	3299	98 14 28	3296
	SATURN	W.	83 53 16	3043	85 22 36	3039	86 52 1	3034	88 21 32	3028
	α Pegasi	W.	78 55 59	3419	80 17 54	3412	81 39 57	3404	83 2 9	3397

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
10	α Aquilæ	W.	57 21 9	3515	58 41 17	3505	60 1 38	3495	61 22 8	3488
	α Arietis	E.	48 10 45	3005	46 40 38	3037	45 11 11	3071	43 42 26	3106
	Aldebaran	E.	78 24 36	2712	76 48 11	2728	75 12 9	2744	73 36 28	2760
	JUPITER	E.	95 52 31	2795	94 17 56	2811	92 43 42	2828	91 9 50	2844
	SUN	E.	117 54 2	3049	116 24 50	3066	114 55 59	3084	113 27 30	3101
11	Antares	W.	113 33 28	2904	115 5 42	2920	116 37 35	2935	118 9 8	2950
	α Aquilæ	W.	68 5 53	3478	69 26 42	3479	70 47 30	3480	72 8 16	3483
	Aldebaran	E.	65 43 8	2836	64 9 27	2850	62 36 4	2864	61 2 59	2877
	JUPITER	E.	83 25 36	2920	81 53 43	2935	80 22 9	2949	78 50 52	2963
	SUN	E.	106 10 9	3183	104 43 40	3198	103 17 28	3212	101 51 33	3226
12	α Aquilæ	W.	78 51 7	3506	80 11 25	3511	81 31 37	3517	82 51 42	3524
	Fomalhaut	W.	44 14 2	3470	45 35 0	3453	46 56 17	3439	48 17 49	3427
	SATURN	W.	30 8 50	2931	31 40 30	2942	33 11 56	2952	34 43 9	2962
	Aldebaran	E.	53 21 41	2939	51 50 12	2950	50 18 56	2960	48 47 53	2970
	JUPITER	E.	71 18 38	3026	69 48 57	3037	68 19 30	3048	66 50 17	3058
	SUN	E.	94 46 7	3294	93 21 48	3305	91 57 42	3316	90 33 49	3327
13	α Aquilæ	W.	89 30 15	3560	90 49 33	3567	92 8 43	3576	93 27 44	3584
	Fomalhaut	W.	55 8 21	3387	56 30 52	3382	57 53 29	3377	59 16 12	3372
	α Pegasi	W.	42 7 48	3865	43 21 43	3826	44 36 18	3792	45 51 29	3761
	SATURN	W.	42 16 20	3005	43 46 27	3012	45 16 25	3019	46 46 14	3025
	Aldebaran	E.	41 15 39	3014	39 45 44	3022	38 15 59	3029	36 46 22	3035
	JUPITER	E.	59 27 11	3104	57 59 7	3112	56 31 12	3119	55 3 26	3126
	SUN	E.	83 37 24	3375	82 14 39	3382	80 52 2	3390	79 29 34	3397
14	α Aquilæ	W.	100 0 31	3628	101 18 35	3638	102 36 28	3648	103 54 11	3658
	Fomalhaut	W.	66 10 50	3357	67 33 56	3354	68 57 4	3351	70 20 16	3349
	SATURN	W.	54 13 36	3050	55 42 47	3053	57 11 54	3056	58 40 57	3059
	α Pegasi	W.	52 14 39	3642	53 32 28	3623	54 50 37	3606	56 9 5	3591
	Aldebaran	E.	29 20 8	3061	27 51 12	3065	26 22 20	3069	24 53 32	3072
	JUPITER	E.	47 46 31	3154	46 19 27	3159	44 52 29	3163	43 25 35	3167
	SUN	E.	72 39 3	3425	71 17 14	3429	69 55 31	3432	68 33 51	3435
15	α Aquilæ	W.	110 19 51	3717	111 36 20	3731	112 52 34	3745	114 8 34	3758
	Fomalhaut	W.	77 16 56	3338	78 40 24	3335	80 3 55	3332	81 27 29	3330
	SATURN	W.	66 5 31	3066	67 34 22	3067	69 3 12	3066	70 32 3	3065
	α Pegasi	W.	62 45 14	3526	64 5 9	3516	65 25 16	3505	66 45 35	3495
	Aldebaran	E.	17 30 20	3082	16 1 48	3083	14 33 18	3084	13 4 49	3086
	JUPITER	E.	36 12 6	3180	34 45 33	3182	33 19 2	3184	31 52 34	3185
	SUN	E.	61 46 11	3443	60 24 43	3445	59 3 17	3444	57 41 49	3443
16	Fomalhaut	W.	88 26 5	3316	89 49 59	3313	91 13 55	3310	92 37 55	3306
	SATURN	W.	77 56 41	3056	79 25 44	3053	80 54 51	3050	82 24 1	3047
	α Pegasi	W.	73 29 46	3450	74 51 6	3442	76 12 34	3434	77 34 12	3426
	JUPITER	E.	24 40 36	3193	23 14 19	3196	21 48 5	3199	20 21 55	3203
	SUN	E.	50 54 13	3433	49 32 34	3431	48 10 52	3427	46 49 6	3423
17	Fomalhaut	W.	99 38 45	3293	101 3 5	3289	102 27 29	3287	103 51 56	3285
	SATURN	W.	89 51 10	3023	91 20 54	3018	92 50 44	3013	94 20 41	3006
	α Pegasi	W.	84 24 29	3390	85 46 57	3384	87 9 32	3377	88 32 15	3371

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
17	Sun	E.	45 27 15	3419	44 5 20	3415	42 43 20	3409	41 21 14	3405
18	Fomalhaut	W.	105 16 25	3282	106 40 57	3280	108 5 32	3278	109 30 9	3276
	Saturn	W.	95 50 46	3000	97 20 58	2993	98 51 19	2987	100 21 48	2980
	a Pegasi	W.	89 55 5	3365	91 18 2	3358	92 41 6	3352	94 4 17	3347
	Sun	E.	34 29 13	3375	33 6 28	3368	31 43 35	3361	30 20 34	3354
23	Sun	W.	23 1 43	3008	24 31 46	2997	26 2 2	2987	27 32 31	2977
	Antares	E.	105 46 49	2732	104 10 52	2722	102 34 41	2713	100 58 18	2703
24	Sun	W.	35 8 1	2929	36 39 43	2919	38 11 38	2909	39 43 45	2900
	Antares	E.	92 53 15	2657	91 15 38	2649	89 37 50	2640	87 59 50	2632
25	Sun	W.	47 27 18	2854	49 0 36	2845	50 34 6	2835	52 7 48	2826
	Regulus	W.	20 37 54	2538	22 18 15	2529	23 58 48	2520	25 39 34	2511
	Antares	E.	79 46 59	2591	78 7 52	2584	76 28 35	2577	74 49 8	2569
26	Sun	W.	59 59 13	2782	61 34 5	2772	63 9 9	2763	64 44 25	2754
	Regulus	W.	34 6 26	2468	35 48 24	2459	37 30 35	2450	39 12 57	2442
	Antares	E.	66 29 22	2534	64 48 56	2528	63 8 22	2522	61 27 40	2516
	a Aquilæ	E.	111 55 10	3107	110 27 9	3085	108 58 41	3065	107 29 48	3044
27	Sun	W.	72 43 38	2710	74 20 4	2702	75 56 41	2693	77 33 30	2685
	Regulus	W.	47 47 45	2401	49 31 18	2393	51 15 2	2385	52 58 58	2378
	Antares	E.	53 2 15	2493	51 20 51	2489	49 39 22	2486	47 57 49	2484
	a Aquilæ	E.	99 59 44	2963	98 28 45	2950	96 57 30	2938	95 25 59	2927
28	Sun	W.	85 40 24	2643	87 18 21	2635	88 56 28	2626	90 34 47	2618
	Regulus	W.	61 41 29	2338	63 26 33	2330	65 11 49	2322	66 57 16	2315
	a Aquilæ	E.	87 45 17	2885	86 12 39	2880	84 39 55	2876	83 7 5	2872
29	Sun	W.	98 49 3	2580	100 28 25	2572	102 7 58	2566	103 47 40	2559
	Regulus	W.	75 47 9	2280	77 33 38	2272	79 20 18	2266	81 7 8	2260
	a Aquilæ	E.	75 22 17	2873	73 49 23	2876	72 16 34	2883	70 43 53	2890
	Fomalhaut	E.	108 54 46	2554	107 14 48	2543	105 34 34	2531	103 54 4	2521
	Saturn	E.	119 56 16	2264	118 9 24	2257	116 22 21	2250	114 35 8	2244
30	Sun	W.	112 8 28	2527	113 49 3	2522	115 29 46	2516	117 10 37	2511
	Regulus	W.	90 3 34	2230	91 51 17	2225	93 39 8	2220	95 27 6	2215
	Spica	W.	36 44 45	2317	38 30 19	2307	40 16 9	2296	42 2 15	2286
	a Aquilæ	E.	63 3 31	2954	61 32 21	2974	60 1 36	2997	58 31 19	3023
	Fomalhaut	E.	95 28 14	2479	93 46 31	2473	92 4 39	2467	90 22 39	2462
	Saturn	E.	105 36 46	2214	103 48 40	2209	102 0 26	2204	100 12 4	2199
	a Pegasi	E.	110 15 39	2630	108 37 25	2617	106 58 53	2604	105 20 4	2593
31	Regulus	W.	104 28 33	2196	106 17 6	2193	108 5 44	2190	109 54 26	2188
	Spica	W.	50 55 58	2249	52 43 13	2243	54 30 36	2238	56 18 7	2234
	a Aquilæ	E.	51 9 30	3214	49 43 37	3268	48 18 48	3328	46 55 9	3396
	Fomalhaut	E.	81 51 20	2450	80 8 56	2450	78 26 32	2450	76 44 9	2452
	Saturn	E.	91 8 37	2180	89 19 39	2177	87 30 37	2174	85 41 31	2172
	a Pegasi	E.	97 2 34	2553	95 22 34	2548	93 42 27	2543	92 2 14	2540

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	XVIII^{h}	P. L. of Diff.	XXI^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
17	SUN	E.	39 59 3	3400	38 36 46	3393	37 14 22	3387	35 51 51	3381
18	Fomalhaut	W.	110 54 48	3275	112 19 29	3274	113 44 10	3274	115 8 52	3274
	SATURN	W.	101 52 25	2973	103 23 11	2966	104 54 6	2958	106 25 10	2950
	α Pegasi	W.	95 27 34	3342	96 50 57	3338	98 14 25	3333	99 37 59	3328
	SUN	E.	28 57 25	3347	27 34 8	3339	26 10 42	3332	24 47 8	3324
23	SUN	W.	29 3 12	2967	30 34 6	2958	32 5 12	2948	33 36 30	2938
	Antares	E.	99 21 42	2694	97 44 54	2684	96 7 53	2675	94 30 40	2666
24	SUN	W.	41 16 4	2891	42 48 35	2882	44 21 17	2872	45 54 12	2863
	Antares	E.	86 21 38	2624	84 43 15	2615	83 4 41	2607	81 25 55	2599
25	SUN	W.	53 41 42	2817	55 15 47	2808	56 50 4	2799	58 24 33	2791
	Regulus	W.	27 20 32	2502	29 1 42	2493	30 43 5	2485	32 24 40	2477
	Antares	E.	73 9 30	2561	71 29 42	2555	69 49 45	2548	68 9 38	2541
26	SUN	W.	66 19 53	2746	67 55 32	2738	69 31 22	2729	71 7 24	2719
	Regulus	W.	40 55 31	2434	42 38 17	2426	44 21 14	2418	46 4 24	2410
	Antares	E.	59 46 49	2511	58 5 51	2505	56 24 45	2501	54 43 33	2497
	α Aquilæ	E.	106 0 30	3026	104 30 49	3009	103 0 48	2993	101 30 26	2977
27	SUN	W.	79 10 30	2676	80 47 42	2669	82 25 4	2660	84 2 38	2651
	Regulus	W.	54 43 5	2370	56 27 24	2362	58 11 54	2353	59 56 36	2346
	Antares	E.	46 16 13	2482	44 34 35	2482	42 52 56	2482	41 11 17	2483
	α Aquilæ	E.	93 54 14	2916	92 22 16	2908	90 50 7	2899	89 17 47	2891
28	SUN	W.	92 13 17	2610	93 51 58	2603	95 30 49	2595	97 9 51	2588
	Regulus	W.	68 42 53	2308	70 28 41	2300	72 14 40	2294	74 0 49	2287
	α Aquilæ	E.	81 34 10	2869	80 1 12	2869	78 28 13	2869	76 55 14	2870
29	SUN	W.	105 27 32	2552	107 7 33	2546	108 47 42	2539	110 28 1	2533
	Regulus	W.	82 54 7	2253	84 41 16	2247	86 28 33	2241	88 15 59	2235
	α Aquilæ	E.	69 11 21	2898	67 39 0	2909	66 6 53	2922	64 35 2	2938
	Fomalhaut	E.	102 13 19	2511	100 32 21	2502	98 51 10	2493	97 9 47	2486
	SATURN	E.	112 47 46	2238	111 0 15	2231	109 12 34	2225	107 24 44	2220
30	SUN	W.	118 51 35	2507	120 32 39	2502	122 13 50	2498	123 55 6	2494
	Regulus	W.	97 15 11	2211	99 3 22	2206	100 51 40	2202	102 40 4	2199
	Spica	W.	43 48 35	2277	45 35 8	2268	47 21 54	2261	49 8 51	2255
	α Aquilæ	E.	57 1 35	3053	55 32 28	3086	54 4 1	3124	52 36 20	3166
	Fomalhaut	E.	88 40 33	2458	86 58 21	2455	85 16 4	2452	83 33 43	2450
	SATURN	E.	98 23 35	2195	96 35 0	2190	94 46 18	2186	92 57 30	2183
	α Pegasi	E.	103 40 59	2583	102 1 40	2574	100 22 9	2566	98 42 26	2559
31	Regulus	W.	111 43 11	2187	113 31 58	2185	115 20 48	2184	117 9 40	2183
	Spica	W.	58 5 44	2231	59 53 26	2228	61 41 12	2225	63 29 2	2223
	α Aquilæ	E.	45 32 48	3473	44 11 54	3559	42 52 35	3657	41 35 2	3768
	Fomalhaut	E.	75 1 48	2455	73 19 31	2459	71 37 19	2463	69 55 14	2469
	SATURN	E.	83 52 22	2170	82 3 10	2169	80 13 55	2167	78 24 38	2167
	α Pegasi	E.	90 21 57	2538	88 41 37	2538	87 1 16	2538	85 20 55	2539

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Wed.	1	8 42 55.43	9.724	N. 18 11 45.0	– 37.26	15 47.45	66.67	6 10.23	0.132
Thur.	2	8 46 48.49	9.698	17 56 42.0	38.00	15 47.58	66.59	6 6.73	0.158
Frid.	3	8 50 40.94	9.673	17 41 21.3	38.72	15 47.72	66.50	6 2.64	0.184
Sat.	4	8 54 32.77	9.648	17 25 43.3	– 39.43	15 47.85	66.41	5 57.92	0.209
SUN.	5	8 58 24.00	9.623	17 9 48.4	40.13	15 47.98	66.32	5 52.62	0.234
Mon.	6	9 2 14.63	9.598	16 53 36.8	40.82	15 48.12	66.23	5 46.70	0.259
Tues.	7	9 6 4.67	9.574	16 37 9.0	– 41.50	15 48.26	66.14	5 40.21	0.283
Wed.	8	9 9 54.14	9.550	16 20 24.9	42.17	15 48.40	66.06	5 33.14	0.306
Thur.	9	9 13 43.03	9.526	16 3 24.9	42.82	15 48.55	65.97	5 25.50	0.330
Frid.	10	9 17 31.34	9.503	15 46 9.4	– 43.46	15 48.70	65.89	5 17.28	0.354
Sat.	11	9 21 19.10	9.479	15 28 38.8	44.09	15 48.85	65.81	5 8.52	0.377
SUN.	12	9 25 6.31	9.456	15 10 53.3	44.71	15 49.01	65.73	4 59.19	0.400
Mon.	13	9 28 52.98	9.433	14 52 53.2	– 45.31	15 49.18	65.65	4 49.34	0.423
Tues.	14	9 32 39.10	9.411	14 34 38.7	45.90	15 49.34	65.57	4 38.94	0.445
Wed.	15	9 36 24.69	9.389	14 16 10.2	46.48	15 49.50	65.49	4 28.00	0.467
Thur.	16	9 40 9.75	9.367	13 57 28.0	– 47.04	15 49.67	65.41	4 16.54	0.488
Frid.	17	9 43 54.31	9.346	13 38 32.5	47.59	15 49.85	65.33	4 4.57	0.509
Sat.	18	9 47 38.35	9.325	13 19 23.9	48.12	15 50.03	65.26	3 52.09	0.530
SUN.	19	9 51 21.89	9.304	13 0 2.6	– 48.64	15 50.22	65.18	3 39.12	0.551
Mon.	20	9 55 4.93	9.284	12 40 28.9	49.15	15 50.41	65.11	3 25.64	0.572
Tues.	21	9 58 47.48	9.264	12 20 43.2	49.65	15 50.60	65.04	3 11.68	0.592
Wed.	22	10 2 29.56	9.244	12 0 45.7	– 50.13	15 50.80	64.98	2 57.24	0.611
Thur.	23	10 6 11.17	9.225	11 40 36.9	50.60	15 51.00	64.91	2 42.34	0.630
Frid.	24	10 9 52.32	9.206	11 20 16.9	51.05	15 51.21	64.85	2 26.98	0.649
Sat.	25	10 13 33.02	9.187	10 59 46.3	– 51.49	15 51.43	64.78	2 11.17	0.668
SUN.	26	10 17 13.28	9.169	10 39 5.2	51.92	15 51.64	64.72	1 54.92	0.686
Mon.	27	10 20 53.12	9.152	10 18 14.1	52.33	15 51.86	64.66	1 38.25	0.703
Tues.	28	10 24 32.55	9.136	9 57 13.2	– 52.73	15 52.08	64.60	1 21.17	0.720
Wed.	29	10 28 11.58	9.120	9 36 3.0	53.12	15 52.31	64.55	1 3.70	0.736
Thur.	30	10 31 50.24	9.104	9 14 43.7	53.49	15 52.53	64.50	0 45.86	0.751
Frid.	31	10 35 28.53	9.089	8 53 15.6	53.85	15 52.75	64.45	0 27.66	0.765
Sat.	32	10 39 6.52	9.075	N. 8 31 38.9	– 54.20	15 52.98	64.40	0 9.12	0.779

Note.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.18$ from the sidereal time. The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ′ ″	″	m s	s	h m s
Wed.	1	8 42 54.43	9.724	N.18 11 48.8	−37.26	6 10.24	0.132	8 36 44.19
Thur.	2	8 46 47.50	9.698	17 56 45.8	38.00	6 6.75	0.158	8 40 40.75
Frid.	3	8 50 39.96	9.673	17 41 25.2	38.72	6 2.66	0.184	8 44 37.30
Sat.	4	8 54 31.80	9.648	17 25 47.2	−39.43	5 57.95	0.209	8 48 33.86
SUN.	5	8 58 23.05	9.623	17 9 52.4	40.13	5 52.64	0.234	8 52 30.41
Mon.	6	9 2 13.70	9.598	16 53 40.8	40.82	5 46.73	0.259	8 56 26.97
Tues.	7	9 6 3.76	9.574	16 37 12.9	−41.50	5 40.24	0.283	9 0 23.52
Wed.	8	9 9 53.25	9.550	16 20 28.8	42.17	5 33.17	0.306	9 4 20.08
Thur.	9	9 13 42.16	9.526	16 3 28.8	42.82	5 25.53	0.330	9 8 16.63
Frid.	10	9 17 30.50	9.503	15 46 13.3	−43.46	5 17.31	0.354	9 12 13.19
Sat.	11	9 21 18.29	9.480	15 28 42.6	44.09	5 8.54	0.377	9 16 9.74
SUN.	12	9 25 5.52	9.457	15 10 57.0	44.71	4 59.22	0.400	9 20 6.30
Mon.	13	9 28 52.22	9.434	14 52 56.8	−45.31	4 49.37	0.423	9 24 2.85
Tues.	14	9 32 38.37	9.412	14 34 42.2	45.90	4 38.97	0.445	9 27 59.40
Wed.	15	9 36 23.99	9.390	14 16 13.6	46.48	4 28.03	0.467	9 31 55.96
Thur.	16	9 40 9.08	9.368	13 57 31.3	−47.04	4 16.57	0.488	9 35 52.51
Frid.	17	9 43 53.66	9.347	13 38 35.7	47.59	4 4.60	0.509	9 39 49.07
Sat.	18	9 47 37.74	9.326	13 19 27.0	48.13	3 52.12	0.530	9 43 45.62
SUN.	19	9 51 21.32	9.305	13 0 5.5	−48.65	3 39.15	0.551	9 47 42.17
Mon.	20	9 55 4.40	9.285	12 40 31.7	49.16	3 25.67	0.572	9 51 38.73
Tues.	21	9 58 46.99	9.265	12 20 45.8	49.66	3 11.71	0.592	9 55 35.28
Wed.	22	10 2 29.11	9.245	12 0 48.1	−50.14	2 57.27	0.611	9 59 31.84
Thur.	23	10 6 10.76	9.226	11 40 39.1	50.61	2 42.37	0.630	10 3 28.39
Frid.	24	10 9 51.95	9.207	11 20 18.9	51.06	2 27.01	0.649	10 7 24.94
Sat.	25	10 13 32.69	9.188	10 59 48.1	−51.50	2 11.19	0.668	10 11 21.50
SUN.	26	10 17 12.99	9.170	10 39 6.8	51.93	1 54.94	0.686	10 15 18.05
Mon.	27	10 20 52.87	9.153	10 18 15.5	52.34	1 38.27	0.703	10 19 14.60
Tues.	28	10 24 32.34	9.137	9 57 14.4	−52.74	1 21.19	0.720	10 23 11.15
Wed.	29	10 28 11.42	9.121	9 36 3.9	53.13	1 3.71	0.736	10 27 7.71
Thur.	30	10 31 50.13	9.106	9 14 44.3	53.50	0 45.87	0.751	10 31 4.26
Frid.	31	10 35 28.48	9.091	8 53 15.9	53.86	0 27.67	0.765	10 35 0.81
Sat.	32	10 39 6.50	9.077	N. 8 31 39.0	−54.21	0 9.13	0.779	10 38 57.37

Note.—The semidiameter for mean noon may be assumed the same as that for apparent noon. The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing.

Diff. for 1 Hour,
+ 9ˢ.8565.
(Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	213	128 18 31.7	18 14.4	143.49	+ 0.10	0.006 3890	– 24.1	15 20 44.55
2	214	129 15 55.8	15 38.4	143.52	— 0.01	0.006 3306	24.6	15 16 48.64
3	215	130 13 20.7	13 3.2	143.55	0.14	0.006 2709	25.1	15 12 52.73
4	216	131 10 46.4	10 28.8	143.59	— 0.28	0.006 2101	– 25.6	15 8 56.82
5	217	132 8 13.2	7 55.4	143.64	0.42	0.006 1481	26.1	15 5 0.92
6	218	133 5 41.0	5 23.0	143.68	0.55	0.006 0850	26.6	15 1 5.01
7	219	134 3 9.9	2 51.8	143.73	— 0.66	0.006 0206	– 27.1	14 57 9.10
8	220	135 0 40.0	0 21.8	143.79	0.76	0.005 9550	27.6	14 53 13.19
9	221	135 58 11.5	57 53.2	143.84	0.85	0.005 8881	28.2	14 49 17.28
10	222	136 55 44.3	55 25.8	143.90	— 0.90	0.005 8197	– 28.8	14 45 21.37
11	223	137 53 18.5	52 59.9	143.96	0.91	0.005 7498	29.5	14 41 25.46
12	224	138 50 54.2	50 35.5	144.02	0.90	0.005 6782	30.2	14 37 29.56
13	225	139 48 31.3	48 12.5	144.08	— 0.86	0.005 6050	– 30.9	14 33 33.65
14	226	140 46 9.8	45 50.9	144.14	0.81	0.005 5300	31.6	14 29 37.74
15	227	141 43 49.8	43 30.8	144.20	0.72	0.005 4531	32.4	14 25 41.83
16	228	142 41 31.4	41 12.2	144.26	— 0.62	0.005 3743	– 33.2	14 21 45.92
17	229	143 39 14.4	38 55.1	144.32	0.49	0.005 2936	34.1	14 17 50.01
18	230	144 36 58.8	36 39.4	144.38	0.36	0.005 2108	34.9	14 13 54.10
19	231	145 34 44.7	34 25.2	144.44	— 0.23	0.005 1259	– 35.8	14 9 58.19
20	232	146 32 32.0	32 12.4	144.50	— 0.09	0.005 0390	36.7	14 6 2.28
21	233	147 30 20.7	30 1.0	144.56	+ 0.03	0.004 9500	37.5	14 2 6.38
22	234	148 28 10.7	27 50.9	144.61	+ 0.12	0.004 8589	– 38.3	13 58 10.48
23	235	149 26 2.0	25 42.1	144.66	0.20	0.004 7659	39.1	13 54 14.57
24	236	150 23 54.5	23 34.5	144.72	0.25	0.004 6710	39.9	13 50 18.66
25	237	151 21 48.3	21 28.2	144.77	+ 0.28	0.004 5744	– 40.6	13 46 22.75
26	238	152 19 43.3	19 23.1	144.82	0.26	0.004 4761	41.2	13 42 26.84
27	239	153 17 39.6	17 19.3	144.87	0.20	0.004 3765	41.8	13 38 30.94
28	240	154 15 37.0	15 16.6	144.92	+ 0.12	0.004 2756	– 42.3	13 34 35.03
29	241	155 13 35.8	13 15.2	144.97	+ 0.01	0.004 1736	42.7	13 30 39.12
30	242	156 11 35.9	11 15.2	145.03	– 0.11	0.004 0708	43.0	13 26 43.22
31	243	157 9 37.4	9 16.6	145.09	0.24	0.003 9671	43.3	13 22 47.31
32	244	158 7 40.4	7 19.5	145.16	— 0.38	0.003 8628	– 43.6	13 18 51.40

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ' are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour,
— $9^s.8296$.
(Table II.)

GREENWICH MEAN TIME.

Day of the Month.	THE MOON'S								
	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	16 20.7	16 20.0	59 53.4	− 0.09	59 50.8	− 0.33	9 36.2	2.50	11.0
2	16 18.6	16 16.3	59 45.5	0.57	59 37.2	0.80	10 36.4	2.49	12.0
3	16 13.3	16 9.5	59 26.1	1.04	59 12.3	1.25	11 35.3	2.40	13.0
4	16 5.1	16 0.1	58 56.0	− 1.45	58 37.6	− 1.61	12 31.6	2.28	14.0
5	15 54.5	15 48.7	58 17.3	1.74	57 55.7	1.84	13 24.6	2.14	15.0
6	15 42.5	15 36.2	57 33.1	1.90	57 10.1	1.91	14 14.3	2.01	16.0
7	15 30.0	15 23.8	56 47.2	− 1.90	56 24.6	− 1.84	15 1.2	1.91	17.0
8	15 18.0	15 12.4	56 3.0	1.75	55 42.5	1.64	15 46.1	1.84	18.0
9	15 7.3	15 2.6	55 23.7	1.50	55 6.6	1.33	16 29.9	1.81	19.0
10	14 58.6	14 55.1	54 51.7	− 1.15	54 39.1	− 0.95	17 13.3	1.81	20.0
11	14 52.4	14 50.3	54 28.9	0.75	54 21.2	0.53	17 57.0	1.84	21.0
12	14 48.9	14 48.2	54 16.1	− 0.32	54 13.5	− 0.10	18 41.7	1.89	22.0
13	14 48.2	14 48.9	54 13.6	+ 0.11	54 16.1	+ 0.31	19 27.9	1.96	23.0
14	14 50.2	14 52.2	54 21.1	0.51	54 28.4	0.70	20 15.6	2.02	24.0
15	14 54.8	14 58.0	54 37.9	0.87	54 49.3	1.02	21 4.9	2.08	25.0
16	15 1.5	15 5.5	55 2.4	+ 1.15	55 17.0	+ 1.27	21 55.3	2.11	26.0
17	15 9.8	15 14.4	55 32.9	1.36	55 49.7	1.43	22 46.2	2.12	27.0
18	15 19.2	15 24.0	56 7.3	1.47	56 25.1	1.48	23 37.1	2.11	28.0
19	15 28.9	15 33.7	56 42.9	+ 1.48	57 0.6	+ 1.45	☌	. .	29.0
20	15 38.4	15 42.8	57 17.8	1.40	57 34.3	1.33	0 27.7	2.09	0.4
21	15 47.1	15 51.0	57 49.8	1.25	58 4.3	1.15	1 17.7	2.08	1.4
22	15 54.6	15 57.9	58 17.5	+ 1.05	58 29.5	+ 0.94	2 7.3	2.07	2.4
23	16 0.7	16 3.2	58 40.1	0.83	58 49.3	0.71	2 57.2	2.09	3.4
24	16 5.4	16 7.2	58 57.2	0.60	59 3.8	0.49	3 47.8	2.14	4.4
25	16 8.6	16 9.7	59 9.0	+ 0.38	59 13.1	+ 0.28	4 39.8	2.21	5.4
26	16 10.5	16 10.9	59 15.9	+ 0.18	59 17.5	+ 0.08	5 33.7	2.29	6.4
27	16 11.0	16 10.8	59 17.8	− 0.02	59 17.0	− 0.13	6 29.9	2.37	7.4
28	16 10.2	16 9.3	59 14.8	− 0.23	59 11.3	− 0.35	7 27.6	2.43	8.4
29	16 7.9	16 6.1	59 6.4	0.47	59 0.0	0.59	8 26.1	2.43	9.4
30	16 4.0	16 1.5	58 52.1	0.72	58 42.7	0.85	9 24.1	2.38	10.4
31	15 58.5	15 55.0	58 31.7	0.98	58 19.1	1.10	10 20.2	2.29	11.4
32	15 51.3	15 47.1	58 5.2	− 1.22	57 49.9	− 1.32	11 13.7	2.17	12.4

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 1.					FRIDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	17 49 48.87	2.5622	S. 19 44 44.6	3.039	0	19 52 48.43	2.5223	S. 19 30 5.1	3.589
1	17 52 22.65	2.5638	19 47 42.9	2.903	1	19 55 19.67	2.5190	19 26 25.9	3.718
2	17 54 56.52	2.5653	19 50 33.0	2.766	2	19 57 50.71	2.5156	19 22 39.0	3.846
3	17 57 30.48	2.5667	19 53 14.8	2.628	3	20 0 21.54	2.5121	19 18 44.4	3.973
4	18 0 4.52	2.5679	19 55 48.3	2.489	4	20 2 52.16	2.5086	19 14 42.3	4.098
5	18 2 38.63	2.5692	19 58 13.5	2.351	5	20 5 22.57	2.5050	19 10 32.6	4.224
6	18 5 12.82	2.5703	20 0 30.4	2.213	6	20 7 52.76	2.5013	19 6 15.4	4.348
7	18 7 47.07	2.5713	20 2 39.0	2.073	7	20 10 22.72	2.4975	19 1 50.8	4.472
8	18 10 21.38	2.5723	20 4 39.2	1.933	8	20 12 52.46	2.4937	18 57 18.8	4.594
9	18 12 55.74	2.5731	20 6 31.0	1.793	9	20 15 21.96	2.4898	18 52 39.5	4.715
10	18 15 30.15	2.5738	20 8 14.4	1.653	10	20 17 51.23	2.4858	18 47 53.0	4.836
11	18 18 4.60	2.5744	20 9 49.4	1.513	11	20 20 20.25	2.4817	18 42 59.2	4.956
12	18 20 39.08	2.5749	20 11 15.9	1.372	12	20 22 49.03	2.4776	18 37 58.3	5.074
13	18 23 13.59	2.5753	20 12 34.0	1.232	13	20 25 17.56	2.4733	18 32 50.3	5.193
14	18 25 48.12	2.5756	20 13 43.7	1.091	14	20 27 45.83	2.4690	18 27 35.2	5.309
15	18 28 22.66	2.5758	20 14 44.9	0.950	15	20 30 13.84	2.4647	18 22 13.2	5.424
16	18 30 57.21	2.5758	20 15 37.7	0.809	16	20 32 41.59	2.4603	18 16 44.3	5.538
17	18 33 31.76	2.5758	20 16 22.0	0.668	17	20 35 9.07	2.4558	18 11 8.6	5.653
18	18 36 6.31	2.5757	20 16 57.8	0.526	18	20 37 36.29	2.4513	18 5 26.0	5.765
19	18 38 40.84	2.5754	20 17 25.1	0.384	19	20 40 3.23	2.4467	17 59 36.8	5.875
20	18 41 15.36	2.5752	20 17 43.9	0.243	20	20 42 29.89	2.4420	17 53 41.0	5.986
21	18 43 49.86	2.5747	20 17 54.3	0.103	21	20 44 56.28	2.4375	17 47 38.5	6.095
22	18 46 24.32	2.5741	20 17 56.2	0.039	22	20 47 22.39	2.4328	17 41 29.6	6.203
23	18 48 58.75	2.5734	S. 20 17 49.6	0.181	23	20 49 48.21	2.4279	S. 17 35 14.2	6.309
	THURSDAY 2.					SATURDAY 4.			
0	18 51 33.13	2.5726	S. 20 17 34.5	0.322	0	20 52 13.74	2.4231	S. 17 28 52.5	6.414
1	18 54 7.46	2.5717	20 17 11.0	0.462	1	20 54 38.98	2.4183	17 22 24.5	6.518
2	18 56 41.73	2.5707	20 16 39.1	0.603	2	20 57 3.93	2.4133	17 15 50.3	6.622
3	18 59 15.94	2.5695	20 15 58.7	0.743	3	20 59 28.58	2.4084	17 9 9.9	6.723
4	19 1 50.07	2.5683	20 15 10.0	0.883	4	21 1 52.94	2.4035	17 2 23.5	6.823
5	19 4 24.13	2.5670	20 14 12.8	1.023	5	21 4 17.00	2.3985	16 55 31.1	6.923
6	19 6 58.11	2.5656	20 13 7.3	1.162	6	21 6 40.76	2.3934	16 48 32.7	7.023
7	19 9 32.00	2.5640	20 11 53.4	1.301	7	21 9 4.21	2.3883	16 41 28.4	7.119
8	19 12 5.79	2.5623	20 10 31.2	1.440	8	21 11 27.36	2.3833	16 34 18.4	7.214
9	19 14 39.48	2.5606	20 9 0.6	1.578	9	21 13 50.20	2.3781	16 27 2.7	7.309
10	19 17 13.06	2.5588	20 7 21.8	1.716	10	21 16 12.73	2.3729	16 19 41.3	7.403
11	19 19 46.53	2.5568	20 5 34.7	1.853	11	21 18 34.95	2.3678	16 12 14.4	7.495
12	19 22 19.88	2.5548	20 3 39.4	1.990	12	21 20 56.87	2.3627	16 4 41.9	7.586
13	19 24 53.10	2.5526	20 1 35.9	2.127	13	21 23 18.47	2.3574	15 57 4.1	7.675
14	19 27 26.19	2.5503	19 59 24.2	2.263	14	21 25 39.76	2.3522	15 49 20.9	7.763
15	19 29 59.13	2.5478	19 57 4.3	2.399	15	21 28 0.73	2.3468	15 41 32.5	7.850
16	19 32 31.93	2.5454	19 54 36.3	2.533	16	21 30 21.38	2.3416	15 33 38.9	7.936
17	19 35 4.58	2.5429	19 52 0.3	2.668	17	21 32 41.72	2.3364	15 25 40.2	8.020
18	19 37 37.08	2.5402	19 49 16.2	2.802	18	21 35 1.75	2.3311	15 17 36.5	8.103
19	19 40 9.41	2.5374	19 46 24.1	2.934	19	21 37 21.45	2.3257	15 9 27.9	8.185
20	19 42 41.57	2.5346	19 43 24.1	3.067	20	21 39 40.83	2.3204	15 1 14.3	8.266
21	19 45 13.56	2.5317	19 40 16.1	3.198	21	21 41 59.90	2.3152	14 52 56.0	8.345
22	19 47 45.37	2.5287	19 37 0.3	3.329	22	21 44 18.65	2.3098	14 44 32.9	8.423
23	19 50 17.00	2.5255	19 33 36.6	3.460	23	21 46 37.07	2.3044	14 36 5.2	8.500
24	19 52 48.43	2.5223	S. 19 30 5.1	3.589	24	21 48 55.18	2.2992	S. 14 27 32.9	8.575

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 5.					TUESDAY 7.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	21 48 55.18	2.2992	S. 14 27 32.9	8.575	0	23 33 26.54	2.0674	S. 6 32 36.7	10.763
1	21 51 12.97	2.2938	14 18 56.2	8.649	1	23 35 30.47	2.0635	6 21 50.3	10.782
2	21 53 30.43	2.2884	14 10 15.0	8.722	2	23 37 34.16	2.0596	6 11 2.9	10.799
3	21 55 47.58	2.2832	14 1 29.5	8.793	3	23 39 37.62	2.0558	6 0 14.4	10.816
4	21 58 4.41	2.2778	13 52 39.8	8.863	4	23 41 40.86	2.0521	5 49 25.0	10.831
5	22 0 20.92	2.2725	13 43 45.9	8.933	5	23 43 43.87	2.0483	5 38 34.7	10.846
6	22 2 37.11	2.2672	13 34 47.8	9.001	6	23 45 46.65	2.0446	5 27 43.5	10.859
7	22 4 52.98	2.2619	13 25 45.8	9.067	7	23 47 49.22	2.0410	5 16 51.6	10.872
8	22 7 8.54	2.2567	13 16 39.8	9.133	8	23 49 51.57	2.0374	5 5 58.9	10.884
9	22 9 23.78	2.2513	13 7 29.9	9.197	9	23 51 53.71	2.0338	4 55 5.5	10.894
10	22 11 38.70	2.2461	12 58 16.2	9.259	10	23 53 55.63	2.0303	4 44 11.6	10.904
11	22 13 53.31	2.2408	12 48 58.8	9.321	11	23 55 57.35	2.0270	4 33 17.0	10.913
12	22 16 7.60	2.2356	12 39 37.7	9.381	12	23 57 58.87	2.0236	4 22 22.0	10.921
13	22 18 21.58	2.2304	12 30 13.1	9.440	13	0 0 0.18	2.0203	4 11 26.5	10.928
14	22 20 35.25	2.2253	12 20 44.9	9.498	14	0 2 1.30	2.0170	4 0 30.6	10.934
15	22 22 48.61	2.2200	12 11 13.4	9.553	15	0 4 2.22	2.0138	3 49 34.4	10.940
16	22 25 1.65	2.2148	12 1 38.5	9.609	16	0 6 2.95	2.0106	3 38 37.8	10.945
17	22 27 14.39	2.2098	11 52 0.3	9.663	17	0 8 3.49	2.0075	3 27 41.0	10.948
18	22 29 26.82	2.2047	11 42 18.9	9.716	18	0 10 3.85	2.0044	3 16 44.0	10.952
19	22 31 38.95	2.1997	11 32 34.4	9.768	19	0 12 4.02	2.0014	3 5 46.8	10.953
20	22 33 50.78	2.1946	11 22 46.8	9.818	20	0 14 4.02	1.9984	2 54 49.6	10.954
21	22 36 2.30	2.1895	11 12 56.3	9.867	21	0 16 3.83	1.9954	2 43 52.3	10.956
22	22 38 13.52	2.1845	11 3 2.8	9.915	22	0 18 3.47	1.9927	2 32 54.9	10.955
23	22 40 24.44	2.1796	S. 10 53 6.5	9.962	23	0 20 2.95	1.9899	S. 2 21 57.7	10.953
	MONDAY 6.					WEDNESDAY 8.			
0	22 42 35.07	2.1747	S. 10 43 7.4	10.008	0	0 22 2.26	1.9872	S. 2 11 0.6	10.951
1	22 44 45.40	2.1698	10 33 5.6	10.052	1	0 24 1.41	1.9844	2 0 3.6	10.948
2	22 46 55.44	2.1649	10 23 1.2	10.094	2	0 26 0.39	1.9818	1 49 6.8	10.944
3	22 49 5.19	2.1600	10 12 54.3	10.137	3	0 27 59.22	1.9792	1 38 10.3	10.940
4	22 51 14.64	2.1552	10 2 44.8	10.178	4	0 29 57.89	1.9767	1 27 14.0	10.935
5	22 53 23.81	2.1505	9 52 32.9	10.218	5	0 31 56.42	1.9743	1 16 18.1	10.928
6	22 55 32.70	2.1458	9 42 18.7	10.256	6	0 33 54.80	1.9718	1 5 22.6	10.922
7	22 57 41.30	2.1410	9 32 2.2	10.293	7	0 35 53.03	1.9693	0 54 27.5	10.915
8	22 59 49.62	2.1363	9 21 43.5	10.330	8	0 37 51.12	1.9671	0 43 32.8	10.907
9	23 1 57.66	2.1318	9 11 22.6	10.365	9	0 39 49.08	1.9648	0 32 38.7	10.898
10	23 4 5.43	2.1272	9 0 59.7	10.399	10	0 41 46.90	1.9626	0 21 45.1	10.887
11	23 6 12.92	2.1226	8 50 34.7	10.433	11	0 43 44.59	1.9604	S. 0 10 52.2	10.878
12	23 8 20.14	2.1181	8 40 7.8	10.464	12	0 45 42.15	1.9583	N. 0 0 0.2	10.867
13	23 10 27.09	2.1137	8 29 39.0	10.495	13	0 47 39.59	1.9563	0 10 51.8	10.854
14	23 12 33.78	2.1093	8 19 8.4	10.524	14	0 49 36.90	1.9543	0 21 42.7	10.842
15	23 14 40.20	2.1048	8 8 36.1	10.553	15	0 51 34.10	1.9524	0 32 32.8	10.828
16	23 16 46.36	2.1005	7 58 2.1	10.581	16	0 53 31.19	1.9505	0 43 22.1	10.814
17	23 18 52.26	2.0962	7 47 26.4	10.608	17	0 55 28.16	1.9487	0 54 10.5	10.800
18	23 20 57.90	2.0919	7 36 49.2	10.633	18	0 57 25.03	1.9469	1 4 58.1	10.785
19	23 23 3.29	2.0878	7 26 10.5	10.657	19	0 59 21.79	1.9451	1 15 44.7	10.768
20	23 25 8.43	2.0836	7 15 30.4	10.681	20	1 1 18.44	1.9434	1 26 30.3	10.752
21	23 27 13.32	2.0795	7 4 48.8	10.703	21	1 3 15.00	1.9419	1 37 14.9	10.735
22	23 29 17.97	2.0755	6 54 6.0	10.724	22	1 5 11.47	1.9403	1 47 58.5	10.718
23	23 31 22.38	2.0714	6 43 21.9	10.744	23	1 7 7.84	1.9388	1 58 41.0	10.698
24	23 33 26.54	2.0674	S. 6 32 36.7	10.763	24	1 9 4.13	1.9374	N. 2 9 22.2	10.678

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 9.					SATURDAY 11.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	1 9 4.13	1.9374	N. 2 9 22.2	10.678	0	2 41 21.52	1.9268	N. 10 8 26.7	9.069
1	1 11 0.33	1.9360	2 20 2.3	10.658	1	2 43 17.15	1.9277	10 17 29.5	9.023
2	1 12 56.45	1.9346	2 30 41.2	10.638	2	2 45 12.84	1.9287	10 26 29.4	8.975
3	1 14 52.48	1.9333	2 41 18.9	10.618	3	2 47 8.59	1.9297	10 35 26.5	8.928
4	1 16 48.44	1.9321	2 51 55.3	10.596	4	2 49 4.40	1.9307	10 44 20.7	8.879
5	1 18 44.33	1.9309	3 2 30.4	10.573	5	2 51 0.27	1.9318	10 53 12.0	8.831
6	1 20 40.15	1.9298	3 13 4.1	10.550	6	2 52 56.21	1.9329	11 2 0.4	8.782
7	1 22 35.90	1.9287	3 23 36.4	10.526	7	2 54 52.22	1.9341	11 10 45.8	8.732
8	1 24 31.59	1.9277	3 34 7.2	10.502	8	2 56 48.30	1.9353	11 19 28.2	8.681
9	1 26 27.22	1.9267	3 44 36.6	10.478	9	2 58 44.45	1.9365	11 28 7.5	8.630
10	1 28 22.79	1.9257	3 55 4.5	10.452	10	3 0 40.68	1.9378	11 36 43.8	8.579
11	1 30 18.30	1.9248	4 5 30.8	10.426	11	3 2 36.98	1.9391	11 45 17.0	8.528
12	1 32 13.76	1.9240	4 15 55.6	10.399	12	3 4 33.37	1.9405	11 53 47.1	8.475
13	1 34 9.18	1.9233	4 26 18.7	10.372	13	3 6 29.84	1.9418	12 2 14.0	8.423
14	1 36 4.55	1.9225	4 36 40.2	10.344	14	3 8 26.39	1.9433	12 10 37.8	8.369
15	1 37 59.88	1.9218	4 47 0.0	10.315	15	3 10 23.03	1.9448	12 18 58.3	8.315
16	1 39 55.17	1.9212	4 57 18.0	10.286	16	3 12 19.76	1.9463	12 27 15.6	8.262
17	1 41 50.42	1.9207	5 7 34.3	10.257	17	3 14 16.58	1.9478	12 35 29.7	8.207
18	1 43 45.65	1.9202	5 17 48.8	10.227	18	3 16 13.49	1.9493	12 43 40.4	8.151
19	1 45 40.84	1.9196	5 28 1.5	10.196	19	3 18 10.50	1.9509	12 51 47.8	8.095
20	1 47 36.00	1.9192	5 38 12.3	10.165	20	3 20 7.60	1.9526	12 59 51.8	8.038
21	1 49 31.14	1.9189	5 48 21.3	10.133	21	3 22 4.81	1.9543	13 7 52.4	7.982
22	1 51 26.27	1.9186	5 58 28.3	10.100	22	3 24 2.11	1.9559	13 15 49.7	7.925
23	1 53 21.37	1.9182	N. 6 8 33.3	10.068	23	3 25 59.52	1.9577	N. 13 23 43.4	7.867
	FRIDAY 10.					SUNDAY 12.			
0	1 55 16.45	1.9180	N. 6 18 36.4	10.034	0	3 27 57.03	1.9594	N. 13 31 33.7	7.809
1	1 57 11.53	1.9178	6 28 37.4	9.999	1	3 29 54.65	1.9613	13 39 20.5	7.750
2	1 59 6.59	1.9177	6 38 36.3	9.965	2	3 31 52.38	1.9631	13 47 3.7	7.690
3	2 1 1.65	1.9177	6 48 33.2	9.930	3	3 33 50.22	1.9649	13 54 43.3	7.630
4	2 2 56.71	1.9177	6 58 27.9	9.894	4	3 35 48.17	1.9668	14 2 19.3	7.570
5	2 4 51.77	1.9177	7 8 20.5	9.858	5	3 37 46.24	1.9688	14 9 51.7	7.509
6	2 6 46.83	1.9177	7 18 10.8	9.820	6	3 39 44.42	1.9707	14 17 20.4	7.448
7	2 8 41.89	1.9178	7 27 58.9	9.783	7	3 41 42.72	1.9727	14 24 45.4	7.386
8	2 10 36.97	1.9180	7 37 44.8	9.746	8	3 43 41.14	1.9747	14 32 6.7	7.324
9	2 12 32.05	1.9182	7 47 28.4	9.708	9	3 45 39.68	1.9767	14 39 24.3	7.261
10	2 14 27.15	1.9184	7 57 9.7	9.669	10	3 47 38.34	1.9787	14 46 38.0	7.198
11	2 16 22.26	1.9187	8 6 48.7	9.629	11	3 49 37.12	1.9808	14 53 48.0	7.134
12	2 18 17.40	1.9192	8 16 25.2	9.588	12	3 51 36.03	1.9828	15 0 54.1	7.069
13	2 20 12.56	1.9195	8 25 59.3	9.548	13	3 53 35.07	1.9850	15 7 56.3	7.004
14	2 22 7.74	1.9199	8 35 31.0	9.508	14	3 55 34.23	1.9872	15 14 54.6	6.939
15	2 24 2.95	1.9203	8 45 0.3	9.467	15	3 57 33.53	1.9894	15 21 49.0	6.873
16	2 25 58.18	1.9208	8 54 27.0	9.424	16	3 59 32.96	1.9916	15 28 39.4	6.807
17	2 27 53.45	1.9215	9 3 51.2	9.382	17	4 1 32.52	1.9938	15 35 25.8	6.740
18	2 29 48.76	1.9222	9 13 12.8	9.338	18	4 3 32.21	1.9960	15 42 8.2	6.673
19	2 31 44.11	1.9228	9 22 31.8	9.295	19	4 5 32.04	1.9983	15 48 46.5	6.604
20	2 33 39.50	1.9235	9 31 48.2	9.251	20	4 7 32.01	2.0007	15 55 20.7	6.536
21	2 35 34.93	1.9243	9 41 1.9	9.206	21	4 9 32.12	2.0029	16 1 50.8	6.467
22	2 37 30.41	1.9251	9 50 12.9	9.161	22	4 11 32.36	2.0052	16 8 16.7	6.397
23	2 39 25.94	1.9259	9 59 21.2	9.115	23	4 13 32.74	2.0076	16 14 38.4	6.328
24	2 41 21.52	1.9268	N. 10 8 26.7	9.069	24	4 15 33.27	2.0100	N. 16 20 56.0	6.258

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 13.					WEDNESDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	4 15 33.27	2.0100	N.16 20 56.0	6.258	0	5 54 54.89	2.1298	N.19 50 36.9	2.297
1	4 17 33.94	2.0123	16 27 9.3	6.186	1	5 57 2.75	2.1322	19 52 51.9	2.203
2	4 19 34.75	2.0147	16 33 18.3	6.114	2	5 59 10.75	2.1344	19 55 1.3	2.109
3	4 21 35.70	2.0171	16 39 23.0	6.043	3	6 1 18.88	2.1367	19 57 5.0	2.014
4	4 23 36.80	2.0196	16 45 23.4	5.971	4	6 3 27.15	2.1390	19 59 3.0	1.919
5	4 25 38.05	2.0220	16 51 19.5	5.898	5	6 5 35.56	2.1413	20 0 55.3	1.824
6	4 27 39.44	2.0244	16 57 11.1	5.823	6	6 7 44.10	2.1434	20 2 41.9	1.729
7	4 29 40.98	2.0269	17 2 58.3	5.749	7	6 9 52.77	2.1456	20 4 22.8	1.633
8	4 31 42.67	2.0294	17 8 41.0	5.674	8	6 12 1.57	2.1478	20 5 57.9	1.537
9	4 33 44.51	2.0319	17 14 19.2	5.599	9	6 14 10.50	2.1499	20 7 27.2	1.440
10	4 35 46.50	2.0343	17 19 52.9	5.524	10	6 16 19.56	2.1521	20 8 50.7	1.343
11	4 37 48.63	2.0368	17 25 22.1	5.448	11	6 18 28.75	2.1542	20 10 8.4	1.246
12	4 39 50.92	2.0394	17 30 46.7	5.372	12	6 20 38.06	2.1563	20 11 20.2	1.148
13	4 41 53.36	2.0419	17 36 6.7	5.294	13	6 22 47.50	2.1583	20 12 26.2	1.051
14	4 43 55.95	2.0445	17 41 22.0	5.217	14	6 24 57.06	2.1603	20 13 26.3	0.952
15	4 45 58.70	2.0470	17 46 32.7	5.139	15	6 27 6.73	2.1623	20 14 20.4	0.853
16	4 48 1.59	2.0495	17 51 38.7	5.061	16	6 29 16.53	2.1643	20 15 8.6	0.754
17	4 50 4.64	2.0521	17 56 40.0	4.982	17	6 31 26.44	2.1662	20 15 50.9	0.656
18	4 52 7.84	2.0547	18 1 36.5	4.902	18	6 33 36.47	2.1681	20 16 27.3	0.556
19	4 54 11.20	2.0573	18 6 28.2	4.822	19	6 35 46.61	2.1699	20 16 57.6	0.456
20	4 56 14.71	2.0598	18 11 15.1	4.741	20	6 37 56.86	2.1718	20 17 22.0	0.357
21	4 58 18.37	2.0623	18 15 57.1	4.660	21	6 40 7.22	2.1736	20 17 40.4	0.256
22	5 0 22.19	2.0649	18 20 34.3	4.578	22	6 42 17.69	2.1753	20 17 52.7	0.155
23	5 2 26.16	2.0675	N.18 25 6.5	4.496	23	6 44 28.26	2.1770	N.20 17 59.0	0.054
	TUESDAY 14.					THURSDAY 16.			
0	5 4 30.29	2.0701	N.18 29 33.8	4.414	0	6 46 38.93	2.1788	N.20 17 59.2	0.047
1	5 6 34.57	2.0727	18 33 56.2	4.332	1	6 48 49.71	2.1805	20 17 53.4	0.148
2	5 8 39.01	2.0753	18 38 13.6	4.248	2	6 51 0.59	2.1821	20 17 41.5	0.250
3	5 10 43.60	2.0778	18 42 26.0	4.164	3	6 53 11.56	2.1837	20 17 23.4	0.352
4	5 12 48.34	2.0803	18 46 33.3	4.079	4	6 55 22.63	2.1853	20 16 59.3	0.453
5	5 14 53.24	2.0829	18 50 35.5	3.995	5	6 57 33.79	2.1868	20 16 29.0	0.556
6	5 16 58.29	2.0855	18 54 32.7	3.910	6	6 59 45.05	2.1883	20 15 52.6	0.658
7	5 19 3.50	2.0880	18 58 24.7	3.823	7	7 1 56.39	2.1898	20 15 10.1	0.760
8	5 21 8.85	2.0905	19 2 11.5	3.738	8	7 4 7.82	2.1912	20 14 21.4	0.863
9	5 23 14.36	2.0932	19 5 53.2	3.651	9	7 6 19.33	2.1926	20 13 26.5	0.966
10	5 25 20.03	2.0957	19 9 29.6	3.563	10	7 8 30.93	2.1939	20 12 25.5	1.069
11	5 27 25.84	2.0981	19 13 0.8	3.476	11	7 10 42.60	2.1952	20 11 18.2	1.173
12	5 29 31.80	2.1007	19 16 26.7	3.388	12	7 12 54.35	2.1965	20 10 4.8	1.275
13	5 31 37.92	2.1032	19 19 47.3	3.299	13	7 15 6.18	2.1978	20 8 45.2	1.378
14	5 33 44.18	2.1056	19 23 2.6	3.211	14	7 17 18.09	2.1990	20 7 19.4	1.483
15	5 35 50.59	2.1082	19 26 12.6	3.121	15	7 19 30.06	2.2002	20 5 47.3	1.587
16	5 37 57.16	2.1107	19 29 17.1	3.031	16	7 21 42.11	2.2013	20 4 9.0	1.690
17	5 40 3.87	2.1130	19 32 16.3	2.941	17	7 23 54.22	2.2023	20 2 24.5	1.793
18	5 42 10.72	2.1154	19 35 10.0	2.850	18	7 26 6.39	2.2034	20 0 33.8	1.897
19	5 44 17.72	2.1179	19 37 58.3	2.759	19	7 28 18.63	2.2045	19 58 36.9	2.001
20	5 46 24.87	2.1203	19 40 41.1	2.668	20	7 30 30.93	2.2054	19 56 33.7	2.106
21	5 48 32.16	2.1228	19 43 18.4	2.575	21	7 32 43.28	2.2063	19 54 24.2	2.210
22	5 50 39.60	2.1251	19 45 50.1	2.483	22	7 34 55.69	2.2073	19 52 8.5	2.313
23	5 52 47.17	2.1274	19 48 16.3	2.390	23	7 37 8.15	2.2081	19 49 46.6	2.418
24	5 54 54.89	2.1298	N.19 50 36.9	2.297	24	7 39 20.66	2.2089	N.19 47 18.4	2.523

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 17.					SUNDAY 19.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	7 39 20.66	2.2089	N.19 47 18.4	2.523	0	9 25 37.74	2.2075	N.15 49 4.5	7.293
1	7 41 33.22	2.2098	19 44 44.0	2.626	1	9 27 50.17	2.2068	15 41 44.2	7.383
2	7 43 45.83	2.2105	19 42 3.3	2.730	2	9 30 2.55	2.2060	15 34 18.5	7.473
3	7 45 58.48	2.2112	19 39 16.4	2.834	3	9 32 14.89	2.2053	15 26 47.4	7.562
4	7 48 11.17	2.2118	19 36 23.2	2.938	4	9 34 27.18	2.2045	15 19 11.0	7.650
5	7 50 23.90	2.2125	19 33 23.8	3.042	5	9 36 39.43	2.2038	15 11 29.4	7.738
6	7 52 36.67	2.2131	19 30 18.2	3.145	6	9 38 51.64	2.2031	15 3 42.5	7.825
7	7 54 49.47	2.2136	19 27 6.4	3.249	7	9 41 3.80	2.2023	14 55 50.4	7.912
8	7 57 2.30	2.2141	19 23 48.3	3.353	8	9 43 15.91	2.2014	14 47 53.1	7.998
9	7 59 15.16	2.2146	19 20 24.0	3.457	9	9 45 27.97	2.2007	14 39 50.7	8.082
10	8 1 28.05	2.2151	19 16 53.5	3.560	10	9 47 39.99	2.1998	14 31 43.3	8.166
11	8 3 40.97	2.2154	19 13 16.8	3.663	11	9 49 51.95	2.1990	14 23 30.8	8.251
12	8 5 53.90	2.2158	19 9 33.9	3.767	12	9 52 3.87	2.1983	14 15 13.2	8.334
13	8 8 6.86	2.2162	19 5 44.8	3.869	13	9 54 15.74	2.1973	14 6 50.7	8.416
14	8 10 19.84	2.2164	19 1 49.6	3.973	14	9 56 27.55	2.1965	13 58 23.3	8.498
15	8 12 32.83	2.2167	18 57 48.1	4.076	15	9 58 39.32	2.1957	13 49 51.0	8.578
16	8 14 45.84	2.2168	18 53 40.5	4.178	16	10 0 51.03	2.1948	13 41 13.9	8.658
17	8 16 58.85	2.2170	18 49 26.8	4.280	17	10 3 2.70	2.1940	13 32 32.0	8.738
18	8 19 11.88	2.2172	18 45 6.9	4.383	18	10 5 14.31	2 1931	13 23 45.3	8.818
19	8 21 24.92	2.2173	18 40 40.9	4.485	19	10 7 25.87	2.1922	13 14 53.9	8.895
20	8 23 37.96	2.2173	18 36 8.7	4.587	20	10 9 37.37	2.1913	13 5 57.9	8.972
21	8 25 51.00	2.2174	18 31 30.5	4.688	21	10 11 48.83	2.1905	12 56 57.3	9.048
22	8 28 4.05	2.2175	18 26 46.2	4.789	22	10 14 0.23	2.1896	12 47 52.1	9.124
23	8 30 17.10	2.2174	N.18 21 55.8	4.890	23	10 16 11.58	2.1888	N.12 38 42.4	9.198
	SATURDAY 18.					MONDAY 20.			
0	8 32 30.14	2.2173	N.18 16 59.4	4.991	0	10 18 22.88	2.1879	N.12 29 28.3	9.273
1	8 34 43.18	2.2173	18 11 56.9	5.092	1	10 20 34.13	2.1870	12 20 9.7	9.347
2	8 36 56.21	2.2171	18 6 48.4	5.192	2	10 22 45.32	2.1862	12 10 46.7	9.419
3	8 39 9.23	2.2170	18 1 33.9	5.292	3	10 24 56.47	2.1854	12 1 19.4	9.490
4	8 41 22.25	2.2168	17 56 13.4	5.391	4	10 27 7.57	2.1845	11 51 47.9	9.561
5	8 43 35.25	2.2165	17 50 47.0	5.489	5	10 29 18.61	2.1837	11 42 12.1	9.632
6	8 45 48.23	2.2163	17 45 14.7	5.588	6	10 31 29.61	2.1828	11 32 32.1	9.701
7	8 48 1.20	2.2161	17 39 36.4	5.687	7	10 33 40.55	2.1820	11 22 48.0	9.769
8	8 50 14.16	2.2158	17 33 52.2	5.785	8	10 35 51.45	2.1812	11 12 59.8	9.837
9	8 52 27.09	2.2153	17 28 2.2	5.883	9	10 38 2.29	2.1803	11 3 7.6	9.903
10	8 54 40.00	2.2150	17 22 6.3	5.980	10	10 40 13.09	2.1796	10 53 11.4	9.969
11	8 56 52.89	2.2147	17 16 4.6	6.077	11	10 42 23.84	2.1788	10 43 11.3	10.034
12	8 59 5.76	2.2143	17 9 57.1	6.173	12	10 44 34.55	2.1781	10 33 7.3	10.098
13	9 1 18.60	2.2138	17 3 43.8	6.269	13	10 46 45.21	2.1773	10 22 59.5	10.161
14	9 3 31.41	2.2133	16 57 24.8	6.365	14	10 48 55.82	2.1765	10 12 48.0	10.223
15	9 5 44.20	2.2128	16 51 0.0	6.461	15	10 51 6.39	2.1758	10 2 32.8	10.284
16	9 7 56.95	2.2123	16 44 29.5	6.555	16	10 53 16.92	2.1751	9 52 13.9	10.345
17	9 10 9.67	2.2118	16 37 53.4	6.648	17	10 55 27.40	2.1744	9 41 51.4	10.404
18	9 12 22.36	2.2113	16 31 11.7	6.743	18	10 57 37.85	2.1738	9 31 25.4	10.463
19	9 14 35.02	2.2107	16 24 24.3	6.836	19	10 59 48.25	2.1730	9 20 55.9	10.520
20	9 16 47.64	2.2100	16 17 31.4	6.928	20	11 1 58.61	2.1723	9 10 23.0	10.577
21	9 19 0.22	2.2093	16 10 32.9	7.021	21	11 4 8.93	2.1718	8 59 46.7	10.633
22	9 21 12.76	2.2088	16 3 28.9	7.113	22	11 6 19.22	2.1712	8 49 7.1	10.688
23	9 23 25.27	2.2082	15 56 19.4	7.203	23	11 8 29.47	2.1705	8 38 24.2	10.741
24	9 25 37.74	2.2075	N.15 49 4.5	7.293	24	11 10 39.68	2.1699	N. 8 27 38.2	10.793

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 21.					THURSDAY 23.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	11 10 39.68	2.1699	N. 8 27 38.2	10.793	0	12 54 42.34	2.1786	S. 0 51 34.4	12.089
1	11 12 49.86	2.1694	8 16 49.0	10.845	1	12 56 53.09	2.1798	1 3 39.8	12.089
2	11 15 0.01	2.1689	8 5 56.8	10.896	2	12 59 3.91	2.1808	1 15 45.1	12.087
3	11 17 10.13	2.1683	7 55 1.5	10.946	3	13 1 14.79	2.1820	1 27 50.2	12.084
4	11 19 20.21	2.1678	7 44 3.3	10.994	4	13 3 25.75	2.1833	1 39 55.2	12.081
5	11 21 30.27	2.1674	7 33 2.2	11.043	5	13 5 36.79	2.1846	1 51 59.9	12.076
6	11 23 40.30	2.1670	7 21 58.2	11.089	6	13 7 47.90	2.1859	2 4 4.3	12.070
7	11 25 50.31	2.1667	7 10 51.5	11.135	7	13 9 59.10	2.1873	2 16 8.3	12.063
8	11 28 0.30	2.1663	6 59 42.0	11.180	8	13 12 10.38	2.1888	2 28 11.8	12.053
9	11 30 10.26	2.1659	6 48 29.9	11.223	9	13 14 21.75	2.1902	2 40 14.7	12.043
10	11 32 20.20	2.1656	6 37 15.2	11.267	10	13 16 33.20	2.1916	2 52 17.0	12.033
11	11 34 30.13	2.1653	6 25 57.9	11.308	11	13 18 44.74	2.1932	3 4 18.7	12.021
12	11 36 40.03	2.1650	6 14 38.2	11.348	12	13 20 56.38	2.1948	3 16 19.5	12.007
13	11 38 49.92	2.1648	6 3 16.1	11.388	13	13 23 8.11	2.1964	3 28 19.5	11.993
14	11 40 59.80	2.1645	5 51 51.6	11.427	14	13 25 19.95	2.1981	3 40 18.6	11.978
15	11 43 9.66	2.1643	5 40 24.9	11.464	15	13 27 31.88	2.1998	3 52 16.8	11.961
16	11 45 19.52	2.1643	5 28 55.9	11.501	16	13 29 43.92	2.2015	4 4 13.9	11.942
17	11 47 29.37	2.1641	5 17 24.8	11.536	17	13 31 56.06	2.2033	4 16 9.8	11.923
18	11 49 39.21	2.1640	5 5 51.6	11.571	18	13 34 8.31	2.2051	4 28 4.6	11.903
19	11 51 49.05	2.1640	4 54 16.3	11.604	19	13 36 20.67	2.2070	4 39 58.1	11.881
20	11 53 58.89	2.1640	4 42 39.1	11.637	20	13 38 33.15	2.2089	4 51 50.3	11.858
21	11 56 8.73	2.1640	4 30 59.9	11.668	21	13 40 45.74	2.2108	5 3 41.1	11.834
22	11 58 18.57	2.1640	4 19 18.9	11.698	22	13 42 58.45	2.2129	5 15 30.4	11.808
23	12 0 28.41	2.1641	N. 4 7 36.2	11.727	23	13 45 11.29	2.2149	S. 5 27 18.1	11.782
	WEDNESDAY 22.					FRIDAY 24.			
0	12 2 38.26	2.1643	N. 3 55 51.7	11.755	0	13 47 24.24	2.2169	S. 5 39 4.2	11.754
1	12 4 48.12	2.1644	3 44 5.6	11.782	1	13 49 37.32	2.2192	5 50 48.6	11.726
2	12 6 57.99	2.1646	3 32 17.9	11.808	2	13 51 50.54	2.2213	6 2 31.3	11.696
3	12 9 7.87	2.1648	3 20 28.7	11.833	3	13 54 3.88	2.2235	6 14 12.1	11.665
4	12 11 17.77	2.1651	3 8 38.0	11.856	4	13 56 17.36	2.2258	6 25 51.1	11.633
5	12 13 27.68	2.1653	2 56 46.0	11.878	5	13 58 30.97	2.2280	6 37 28.0	11.598
6	12 15 37.61	2.1657	2 44 52.7	11.899	6	14 0 44.72	2.2303	6 49 2.9	11.564
7	12 17 47.56	2.1661	2 32 58.1	11.920	7	14 2 58.61	2.2328	7 0 35.7	11.528
8	12 19 57.54	2.1666	2 21 2.3	11.939	8	14 5 12.65	2.2352	7 12 6.2	11.490
9	12 22 7.55	2.1670	2 9 5.4	11.957	9	14 7 26.83	2.2375	7 23 34.5	11.452
10	12 24 17.58	2.1674	1 57 7.5	11.973	10	14 9 41.15	2.2400	7 35 0.5	11.413
11	12 26 27.64	2.1679	1 45 8.6	11.988	11	14 11 55.63	2.2425	7 46 24.0	11.371
12	12 28 37.73	2.1685	1 33 8.9	12.003	12	14 14 10.25	2.2450	7 57 45.0	11.329
13	12 30 47.86	2.1692	1 21 8.3	12.017	13	14 16 25.03	2.2476	8 9 3.5	11.286
14	12 32 58.03	2.1698	1 9 6.9	12.029	14	14 18 39.96	2.2503	8 20 19.3	11.241
15	12 35 8.24	2.1705	0 57 4.8	12.041	15	14 20 55.06	2.2529	8 31 32.4	11.195
16	12 37 18.49	2.1712	0 45 2.0	12.051	16	14 23 10.31	2.2555	8 42 42.7	11.148
17	12 39 28.78	2.1720	0 32 58.7	12.059	17	14 25 25.72	2.2583	8 53 50.2	11.100
18	12 41 39.13	2.1728	0 20 54.9	12.067	18	14 27 41.30	2.2610	9 4 54.7	11.051
19	12 43 49.52	2.1737	N. 0 8 50.7	12.073	19	14 29 57.04	2.2638	9 15 56.3	11.001
20	12 45 59.97	2.1746	S. 0 3 13.9	12.079	20	14 32 12.95	2.2666	9 26 54.8	10.949
21	12 48 10.47	2.1756	0 15 18.8	12.083	21	14 34 29.03	2.2694	9 37 50.2	10.896
22	12 50 21.04	2.1766	0 27 23.9	12.086	22	14 36 45.28	2.2723	9 48 42.3	10.842
23	12 52 31.66	2.1775	0 39 29.1	12.088	23	14 39 1.71	2.2753	9 59 31.2	10.787
24	12 54 42.34	2.1786	S. 0 51 34.4	12.089	24	14 41 18.31	2.2782	S. 10 10 16.7	10.730

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 25.					MONDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	14 41 18.31	2.2782	S. 10 10 16.7	10.730	0	16 34 19.35	2.4313	S. 17 18 1.9	6.668
1	14 43 35.09	2.2811	10 20 58.8	10.673	1	16 36 45.31	2.4342	17 24 38.7	6.558
2	14 45 52.04	2.2841	10 31 37.4	10.613	2	16 39 11.45	2.4371	17 31 8.8	6.447
3	14 48 9.18	2.2871	10 42 12.4	10.553	3	16 41 37.76	2.4399	17 37 32.3	6.335
4	14 50 26.49	2.2901	10 52 43.7	10.492	4	16 44 4.24	2.4428	17 43 49.0	6.222
5	14 52 43.99	2.2932	11 3 11.4	10.429	5	16 46 30.89	2.4456	17 49 58.9	6.108
6	14 55 1.67	2.2963	11 13 35.2	10.365	6	16 48 57.71	2.4483	17 56 2.0	5.993
7	14 57 19.54	2.2994	11 23 55.2	10.301	7	16 51 24.68	2.4509	18 1 58.1	5.878
8	14 59 37.60	2.3025	11 34 11.3	10.235	8	16 53 51.82	2.4537	18 7 47.3	5.762
9	15 1 55.84	2.3056	11 44 23.4	10.168	9	16 56 19.12	2.4563	18 13 29.5	5.645
10	15 4 14.27	2.3088	11 54 31.4	10.098	10	16 58 46.57	2.4588	18 19 4.7	5.527
11	15 6 32.89	2.3119	12 4 35.2	10.029	11	17 1 14.17	2.4613	18 24 32.7	5.408
12	15 8 51.70	2.3151	12 14 34.9	9.959	12	17 3 41.92	2.4638	18 29 53.6	5.288
13	15 11 10.70	2.3183	12 24 30.3	9.887	13	17 6 9.82	2.4662	18 35 7.3	5.168
14	15 13 29.90	2.3216	12 34 21.3	9.813	14	17 8 37.86	2.4686	18 40 13.8	5.048
15	15 15 49.29	2.3248	12 44 7.9	9.738	15	17 11 6.05	2.4709	18 45 13.0	4.926
16	15 18 8.88	2.3281	12 53 49.9	9.663	16	17 13 34.37	2.4731	18 50 4.9	4.804
17	15 20 28.66	2.3313	13 3 27.4	9.587	17	17 16 2.82	2.4753	18 54 49.5	4.681
18	15 22 48.63	2.3346	13 13 0.3	9.509	18	17 18 31.40	2.4774	18 59 26.6	4.557
19	15 25 8.81	2.3379	13 22 28.5	9.430	19	17 21 0.11	2.4795	19 3 56.3	4.433
20	15 27 29.18	2.3412	13 31 51.9	9.350	20	17 23 28.94	2.4816	19 8 18.6	4.308
21	15 29 49.75	2.3444	13 41 10.5	9.269	21	17 25 57.90	2.4836	19 12 33.3	4.183
22	15 32 10.51	2.3478	13 50 24.2	9.187	22	17 28 26.97	2.4853	19 16 40.5	4.057
23	15 34 31.48	2.3511	S. 13 59 32.9	9.103	23	17 30 56.14	2.4872	S. 19 20 40.1	3.929
	SUNDAY 26.					TUESDAY 28.			
0	15 36 52.64	2.3543	S. 14 8 36.5	9.018	0	17 33 25.43	2.4890	S. 19 24 32.0	3.802
1	15 39 14.00	2.3578	14 17 35.0	8.933	1	17 35 54.82	2.4907	19 28 16.3	3.675
2	15 41 35.57	2.3611	14 26 28.4	8.846	2	17 38 24.31	2.4923	19 31 53.0	3.547
3	15 43 57.33	2.3643	14 35 16.5	8.758	3	17 40 53.90	2.4939	19 35 21.9	3.418
4	15 46 19.29	2.3676	14 43 59.3	8.668	4	17 43 23.58	2.4953	19 38 43.1	3.288
5	15 48 41.44	2.3709	14 52 36.7	8.578	5	17 45 53.34	2.4967	19 41 56.5	3.158
6	15 51 3.80	2.3743	15 1 8.7	8.488	6	17 48 23.18	2.4981	19 45 2.1	3.028
7	15 53 26.36	2.3776	15 9 35.2	8.395	7	17 50 53.11	2.4994	19 47 59.9	2.898
8	15 55 49.11	2.3808	15 17 56.1	8.301	8	17 53 23.11	2.5005	19 50 49.9	2.768
9	15 58 12.06	2.3842	15 26 11.3	8.207	9	17 55 53.17	2.5016	19 53 32.0	2.636
10	16 0 35.21	2.3874	15 34 20.9	8.112	10	17 58 23.30	2.5027	19 56 6.2	2.504
11	16 2 58.55	2.3907	15 42 24.7	8.015	11	18 0 53.49	2.5037	19 58 32.5	2.372
12	16 5 22.09	2.3939	15 50 22.7	7.918	12	18 3 23.74	2.5046	20 0 50.9	2.240
13	16 7 45.82	2.3972	15 58 14.8	7.818	13	18 5 54.04	2.5053	20 3 1.3	2.108
14	16 10 9.75	2.4004	16 6 0.9	7.718	14	18 8 24.38	2.5060	20 5 3.8	1.975
15	16 12 33.87	2.4035	16 13 41.0	7.618	15	18 10 54.76	2.5067	20 6 58.3	1.843
16	16 14 58.17	2.4067	16 21 15.1	7.517	16	18 13 25.18	2.5073	20 8 44.9	1.709
17	16 17 22.67	2.4099	16 28 43.1	7.414	17	18 15 55.63	2.5077	20 10 23.4	1.575
18	16 19 47.36	2.4130	16 36 4.8	7.310	18	18 18 26.10	2.5081	20 11 53.9	1.442
19	16 22 12.23	2.4161	16 43 20.3	7.206	19	18 20 56.60	2.5084	20 13 16.4	1.308
20	16 24 37.29	2.4192	16 50 29.5	7.100	20	18 23 27.11	2.5087	20 14 30.9	1.174
21	16 27 2.53	2.4223	16 57 32.3	6.993	21	18 25 57.64	2.5088	20 15 37.3	1.040
22	16 29 27.96	2.4253	17 4 28.6	6.885	22	18 28 28.17	2.5088	20 16 35.7	0.906
23	16 31 53.56	2.4283	17 11 18.5	6.778	23	18 30 58.70	2.5088	20 17 26.0	0.771
24	16 34 19.35	2.4313	S. 17 18 1.9	6.668	24	18 33 29.23	2.5088	S. 20 18 8.2	0.637

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
WEDNESDAY 29.				
	h m s	s	° ′ ″	″
0	18 33 29.23	2.5088	S. 20 18 8.2	0.637
1	18 35 59.75	2.5085	20 18 42.4	0.503
2	18 38 30.25	2.5083	20 19 8.5	0.368
3	18 41 0.74	2.5079	20 19 26.6	0.234
4	18 43 31.20	2.5074	20 19 36.6	0.100
5	18 46 1.63	2.5069	20 19 38.6	0.034
6	18 48 32.03	2.5063	20 19 32.5	0.168
7	18 51 2.38	2.5055	20 19 18.4	0.303
8	18 53 32.69	2.5048	20 18 56.2	0.437
9	18 56 2.95	2.5039	20 18 26.0	0.570
10	18 58 33.16	2.5030	20 17 47.8	0.703
11	19 1 3.31	2.5018	20 17 1.7	0.836
12	19 3 33.38	2.5007	20 16 7.5	0.969
13	19 6 3.39	2.4995	20 15 5.4	1.102
14	19 8 33.32	2.4982	20 13 55.3	1.235
15	19 11 3.17	2.4968	20 12 37.2	1.367
16	19 13 32.93	2.4953	20 11 11.3	1.498
17	19 16 2.60	2.4938	20 9 37.4	1.630
18	19 18 32.18	2.4921	20 7 55.7	1.761
19	19 21 1.65	2.4903	20 6 6.1	1.892
20	19 23 31.02	2.4886	20 4 8.7	2.022
21	19 26 0.28	2.4868	20 2 3.5	2.152
22	19 28 29.43	2.4848	19 59 50.5	2.282
23	19 30 58.45	2.4827	S. 19 57 29.7	2.411
THURSDAY 30.				
0	19 33 27.35	2.4806	S. 19 55 1.2	2.539
1	19 35 56.12	2.4784	19 52 25.0	2.668
2	19 38 24.76	2.4761	19 49 41.1	2.795
3	19 40 53.25	2.4737	19 46 49.6	2.922
4	19 43 21.60	2.4713	19 43 50.5	3.048
5	19 45 49.81	2.4689	19 40 43.9	3.173
6	19 48 17.87	2.4663	19 37 29.7	3.299
7	19 50 45.76	2.4636	19 34 8.0	3.423
8	19 53 13.50	2.4609	19 30 38.9	3.547
9	19 55 41.07	2.4581	19 27 2.3	3.671
10	19 58 8.47	2.4553	19 23 18.4	3.793
11	20 0 35.70	2.4523	19 19 27.2	3.914
12	20 3 2.75	2.4493	19 15 28.7	4.036
13	20 5 29.62	2.4463	19 11 22.9	4.157
14	20 7 56.30	2.4432	19 7 9.9	4.276
15	20 10 22.80	2.4400	19 2 49.8	4.394
16	20 12 49.10	2.4367	18 58 22.6	4.513
17	20 15 15.20	2.4334	18 53 48.3	4.630
18	20 17 41.11	2.4301	18 49 7.0	4.747
19	20 20 6.81	2.4266	18 44 18.7	4.863
20	20 22 32.30	2.4232	18 39 23.5	4.977
21	20 24 57.59	2.4197	18 34 21.5	5.091
22	20 27 22.66	2.4161	18 29 12.6	5.204
23	20 29 47.52	2.4124	18 23 57.0	5.316
24	20 32 12.15	2.4087	S. 18 18 34.7	5.427

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
FRIDAY 31.				
	h m s	s	° ′ ″	″
0	20 32 12.15	2.4087	S. 18 18 34.7	5.427
1	20 34 36.56	2.4050	18 13 5.8	5.537
2	20 37 0.75	2.4013	18 7 30.3	5.647
3	20 39 24.71	2.3974	18 1 48.2	5.756
4	20 41 48.44	2.3935	17 55 59.6	5.863
5	20 44 11.93	2.3896	17 50 4.7	5.968
6	20 46 35.19	2.3857	17 44 3.4	6.074
7	20 48 58.21	2.3817	17 37 55.8	6.179
8	20 51 20.99	2.3777	17 31 41.9	6.283
9	20 53 43.53	2.3736	17 25 21.9	6.385
10	20 56 5.82	2.3695	17 18 55.7	6.487
11	20 58 27.87	2.3654	17 12 23.5	6.587
12	21 0 49.67	2.3613	17 5 45.3	6.687
13	21 3 11.22	2.3570	16 59 1.1	6.785
14	21 5 32.51	2.3528	16 52 11.1	6.882
15	21 7 53.55	2.3486	16 45 15.3	6.978
16	21 10 14.34	2.3443	16 38 13.7	7.073
17	21 12 34.87	2.3399	16 31 6.5	7.168
18	21 14 55.13	2.3356	16 23 53.6	7.261
19	21 17 15.14	2.3313	16 16 35.2	7.353
20	21 19 34.88	2.3268	16 9 11.3	7.443
21	21 21 54.36	2.3225	16 1 42.0	7.533
22	21 24 13.58	2.3181	15 54 7.4	7.621
23	21 26 32.53	2.3136	S. 15 46 27.5	7.708
SATURDAY, SEPTEMBER 1.				
0	21 28 51.21	2.3091	S. 15 38 42.4	7.794

PHASES OF THE MOON.

			d	h	m
○	Full Moon	Aug.	4	0	59.7
☾	Last Quarter		11	14	47.5
●	New Moon		19	13	27.5
☽	First Quarter		26	12	42.5

			d	h
☾	Apogee	Aug.	12	17.8
☾	Perigee		26	21.5

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Spica	W.	65 16 56	2222	67 4 51	2221	68 52 47	2220	70 40 44	2220
	Fomalhaut	E.	68 13 17	2476	66 31 30	2485	64 49 55	2495	63 8 34	2506
	SATURN	E.	76 35 21	2167	74 46 3	2168	72 56 47	2168	71 7 31	2169
	α Pegasi	E.	83 40 36	2541	82 0 20	2545	80 20 9	2550	78 40 4	2556
2	Spica	W.	79 40 6	2231	81 27 48	2235	83 15 24	2239	85 2 55	2243
	Antares	W.	34 21 41	2372	36 5 56	2363	37 50 24	2355	39 35 4	2349
	SATURN	E.	62 1 48	2181	60 12 52	2185	58 24 1	2189	56 35 17	2194
	α Pegasi	E.	70 22 16	2603	68 43 25	2618	67 4 54	2634	65 26 44	2651
	α Arietis	E.	113 21 20	2380	111 37 16	2379	109 53 11	2380	108 9 7	2381
3	Spica	W.	93 58 30	2274	95 45 8	2282	97 31 34	2290	99 17 48	2299
	Antares	W.	48 19 51	2342	50 4 50	2344	51 49 45	2348	53 34 35	2352
	SATURN	E.	47 33 38	2225	45 45 47	2233	43 58 8	2241	42 10 41	2249
	α Pegasi	E.	57 22 37	2768	55 47 27	2798	54 12 56	2831	52 39 8	2868
	α Arietis	E.	99 29 37	2400	97 46 2	2406	96 2 36	2413	94 19 20	2421
4	Spica	W.	108 5 27	2351	109 50 12	2363	111 34 40	2375	113 18 50	2388
	Antares	W.	62 16 45	2387	64 0 39	2395	65 44 21	2405	67 27 49	2415
	SATURN	E.	33 16 47	2298	31 30 45	2309	29 44 59	2321	27 59 30	2333
	α Arietis	E.	85 46 7	2471	84 4 13	2483	82 22 36	2496	80 41 17	2509
	Aldebaran	E.	117 43 6	2315	115 57 29	2326	114 12 8	2337	112 27 3	2349
5	Antares	W.	76 1 16	2473	77 43 7	2486	79 24 40	2499	81 5 54	2513
	α Arietis	E.	72 19 38	2586	70 40 24	2604	69 1 34	2622	67 23 8	2640
	Aldebaran	E.	103 46 4	2413	102 2 48	2427	100 19 52	2441	98 37 15	2455
6	Antares	W.	89 27 11	2586	91 6 25	2601	92 45 19	2616	94 23 52	2632
	α Aquilæ	W.	47 56 31	3623	49 14 41	3584	50 33 33	3550	51 53 2	3520
	α Arietis	E.	59 17 39	2745	57 41 59	2769	56 6 50	2793	54 32 12	2818
	Aldebaran	E.	90 9 20	2530	88 28 48	2544	86 48 36	2559	85 8 45	2575
	JUPITER	E.	113 11 10	2600	111 32 15	2616	109 53 42	2632	108 15 30	2647
7	Antares	W.	102 31 12	2713	104 7 35	2729	105 43 36	2746	107 19 15	2762
	α Aquilæ	W.	58 37 6	3430	59 58 49	3421	61 20 42	3413	62 42 44	3408
	α Arietis	E.	46 47 45	2962	45 16 45	2996	43 46 27	3031	42 16 53	3069
	Aldebaran	E.	76 54 52	2653	75 17 9	2668	73 39 46	2684	72 2 44	2699
	JUPITER	E.	100 9 43	2725	98 33 36	2741	96 57 51	2756	95 22 25	2772
8	α Aquilæ	W.	69 33 54	3402	70 56 9	3405	72 18 20	3408	73 40 27	3412
	SATURN	W.	20 39 30	2755	22 14 57	2769	23 50 5	2784	25 24 54	2797
	Aldebaran	E.	64 2 40	2775	62 27 39	2788	60 52 56	2802	59 18 31	2817
	JUPITER	E.	87 30 19	2847	85 56 52	2862	84 23 45	2876	82 50 56	2891
	Pollux	E.	108 4 3	2826	106 30 9	2839	104 56 32	2852	103 23 12	2866
	SUN	E.	130 41 2	3114	129 13 9	3129	127 45 35	3144	126 18 19	3160
9	α Aquilæ	W.	80 29 35	3445	81 51 2	3453	83 12 19	3461	84 33 27	3470
	SATURN	W.	33 14 42	2862	34 47 49	2874	36 20 41	2886	37 53 18	2897
	Aldebaran	E.	51 30 56	2883	49 58 16	2895	48 25 51	2908	46 53 42	2919
	JUPITER	E.	75 11 16	2958	73 40 11	2970	72 9 21	2982	70 38 46	2994
	Pollux	E.	95 40 47	2930	94 9 6	2942	92 37 41	2954	91 6 31	2965
	SUN	E.	119 6 30	3232	117 40 59	3245	116 15 43	3258	114 50 42	3270

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	$\mathrm{XVIII}^{\mathrm{h}}$	P. L. of Diff.	$\mathrm{XXI}^{\mathrm{h}}$	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Spica	W.	72 28 41	2222	74 16 36	2223	76 4 29	2225	77 52 19	2228
	Fomalhaut	E.	61 27 29	2519	59 46 42	2533	58 6 15	2549	56 26 10	2568
	Saturn	E.	69 18 16	2170	67 29 4	2172	65 39 55	2175	63 50 49	2178
	a Pegasi	E.	77 0 8	2562	75 20 21	2570	73 40 45	2580	72 1 23	2591
2	Spica	W.	86 50 19	2248	88 37 35	2254	90 24 43	2260	92 11 41	2267
	Antares	W.	41 19 53	2344	43 4 48	2341	44 49 48	2339	46 34 50	2340
	Saturn	E.	54 46 40	2199	52 58 11	2205	51 9 51	2211	49 21 40	2217
	a Pegasi	E.	63 48 58	2670	62 11 38	2690	60 34 45	2713	58 58 23	2740
	a Arietis	E.	106 25 4	2383	104 41 5	2386	102 57 10	2389	101 13 20	2394
3	Spica	W.	101 3 49	2309	102 49 36	2319	104 35 8	2329	106 20 25	2340
	Antares	W.	55 19 19	2358	57 3 55	2364	58 48 22	2371	60 32 39	2379
	Saturn	E.	40 23 26	2258	38 36 25	2268	36 49 38	2277	35 3 5	2287
	a Pegasi	E.	51 6 8	2908	49 33 59	2952	48 2 46	3000	46 32 33	3053
	a Arietis	E.	92 36 15	2429	90 53 22	2439	89 10 43	2449	87 28 18	2459
4	Spica	W.	115 2 42	2401	116 46 15	2416	118 29 27	2430	120 12 19	2444
	Antares	W.	69 11 2	2426	70 54 0	2437	72 36 42	2449	74 19 7	2460
	Saturn	E.	26 14 18	2345	24 29 24	2358	22 44 49	2371	21 0 33	2384
	a Arietis	E.	79 0 16	2523	77 19 35	2538	75 39 15	2553	73 59 16	2569
	Aldebaran	E.	110 42 15	2362	108 57 45	2374	107 13 33	2387	105 29 39	2400
5	Antares	W.	82 46 49	2527	84 27 24	2541	86 7 40	2556	87 47 36	2571
	a Arietis	E.	65 45 8	2660	64 7 34	2681	62 30 28	2701	60 53 49	2722
	Aldebaran	E.	96 54 59	2470	95 13 3	2485	93 31 28	2499	91 50 14	2514
6	Antares	W.	96 2 3	2649	97 39 52	2665	99 17 20	2681	100 54 26	2696
	a Aquilæ	W.	53 13 4	3496	54 33 33	3475	55 54 25	3457	57 15 37	3442
	a Arietis	E.	52 58 8	2844	51 24 37	2872	49 51 42	2901	48 19 24	2931
	Aldebaran	E.	83 29 16	2591	81 50 8	2607	80 11 22	2622	78 32 57	2637
	Jupiter	E.	106 37 39	2663	105 0 9	2678	103 22 59	2694	101 46 11	2709
7	Antares	W.	108 54 33	2779	110 29 29	2795	112 4 4	2811	113 38 17	2828
	a Aquilæ	W.	64 4 52	3404	65 27 5	3401	66 49 20	3400	68 11 37	3400
	a Arietis	E.	40 48 6	3110	39 20 8	3153	37 53 1	3199	36 26 50	3249
	Aldebaran	E.	70 26 3	2715	68 49 43	2729	67 13 42	2744	65 38 1	2760
	Jupiter	E.	93 47 20	2787	92 12 35	2802	90 38 10	2818	89 4 5	2832
8	*a* Aquilæ	W.	75 2 30	3418	76 24 27	3424	77 46 16	3430	79 7 59	3437
	Saturn	W.	26 59 26	2811	28 33 40	2824	30 7 37	2836	31 41 18	2849
	Aldebaran	E.	57 44 25	2831	56 10 37	2844	54 37 7	2857	53 3 53	2870
	Jupiter	E.	81 18 25	2905	79 46 12	2919	78 14 17	2931	76 42 38	2945
	Pollux	E.	101 50 10	2879	100 17 25	2892	98 44 56	2905	97 12 44	2917
	Sun	E.	124 51 22	3175	123 24 43	3190	121 58 22	3204	120 32 18	3218
9	*a* Aquilæ	W.	85 54 25	3479	87 15 13	3488	88 35 50	3498	89 56 17	3508
	Saturn	W.	39 25 41	2908	40 57 49	2919	42 29 44	2929	44 1 25	2939
	Aldebaran	E.	45 21 47	2931	43 50 7	2942	42 18 41	2952	40 47 28	2962
	Jupiter	E.	69 8 26	3006	67 38 21	3018	66 8 30	3028	64 38 52	3039
	Pollux	E.	89 35 35	2977	88 4 54	2988	86 34 26	2999	85 4 12	3009
	Sun	E.	113 25 56	3283	112 1 25	3295	110 37 8	3306	109 13 4	3317

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.			P. L. of Diff.	III^{h}			P. L. of Diff.	VI^{h}			P. L. of Diff.	IX^{h}			P. L. of Diff.
			°	′	″		°	′	″		°	′	″		°	′	″	
10	*a* Aquilæ	W.	91	16	32	3519	92	36	35	3529	93	56	27	3540	95	16	7	3551
	Fomalhaut	W.	56	56	54	3327	58	20	34	3324	59	44	17	3323	61	8	2	3322
	Saturn	W.	45	32	54	2949	47	4	10	2958	48	35	15	2967	50	6	9	2976
	a Pegasi	W.	43	47	13	3765	45	2	52	3733	46	19	4	3705	47	35	46	3680
	Aldebaran	E.	39	16	28	2972	37	45	41	2981	36	15	5	2990	34	44	40	2999
	Jupiter	E.	63	9	27	3049	61	40	15	3058	60	11	14	3067	58	42	24	3076
	Pollux	E.	83	34	10	3019	82	4	21	3029	80	34	45	3039	79	5	20	3047
	Sun	E.	107	49	12	3328	106	25	33	3338	105	2	6	3348	103	38	50	3358
11	*a* Aquilæ	W.	101	51	17	3611	103	9	39	3624	104	27	48	3637	105	45	42	3651
	Fomalhaut	W.	68	6	56	3321	69	30	43	3322	70	54	29	3321	72	18	16	3321
	Saturn	W.	57	38	12	3010	59	8	12	3017	60	38	4	3022	62	7	50	3026
	a Pegasi	W.	54	5	7	3587	55	23	55	3573	56	42	59	3560	58	2	17	3549
	Aldebaran	E.	27	15	7	3035	25	45	38	3042	24	16	17	3047	22	47	2	3052
	Jupiter	E.	51	20	48	3114	49	52	55	3120	48	25	10	3126	46	57	32	3131
	Pollux	E.	71	40	49	3086	70	12	23	3093	68	44	5	3100	67	15	55	3105
	Sun	E.	96	44	58	3396	95	22	37	3403	94	0	24	3408	92	38	17	3413
12	Fomalhaut	W.	79	17	7	3322	80	40	53	3322	82	4	39	3321	83	28	26	3321
	Saturn	W.	69	35	23	3043	71	4	43	3045	72	34	0	3046	74	3	16	3047
	a Pegasi	W.	64	41	40	3501	66	2	3	3494	67	22	34	3486	68	43	14	3478
	Jupiter	E.	39	40	48	3151	38	13	41	3154	36	46	37	3157	35	19	36	3159
	Pollux	E.	59	56	46	3130	58	29	14	3134	57	1	46	3138	55	34	22	3142
	Sun	E.	85	48	58	3432	84	27	18	3434	83	5	40	3436	81	44	4	3437
13	Fomalhaut	W.	90	27	33	3316	91	51	26	3314	93	15	21	3313	94	39	18	3311
	Saturn	W.	81	29	31	3044	82	58	49	3042	84	28	9	3039	85	57	33	3037
	a Pegasi	W.	75	28	35	3444	76	50	1	3438	78	11	35	3431	79	33	16	3425
	a Arietis	W.	32	5	5	3652	33	22	43	3606	34	41	11	3565	36	0	24	3527
	Jupiter	E.	28	5	5	3167	26	38	16	3168	25	11	29	3168	23	44	42	3169
	Pollux	E.	48	18	22	3155	46	51	19	3158	45	24	20	3160	43	57	23	3163
	Sun	E.	74	56	10	3434	73	34	32	3432	72	12	52	3430	70	51	9	3427
14	Fomalhaut	W.	101	39	36	3301	103	3	47	3299	104	28	0	3296	105	52	16	3294
	Saturn	W.	93	25	33	3016	94	55	26	3011	96	25	25	3005	97	55	31	2998
	a Pegasi	W.	86	23	28	3394	87	45	52	3388	89	8	22	3382	90	30	59	3376
	a Arietis	W.	42	45	43	3382	44	8	20	3359	45	31	23	3337	46	54	52	3316
	Pollux	E.	36	43	31	3180	35	16	58	3185	33	50	31	3192	32	24	12	3200
	Sun	E.	64	1	33	3405	62	39	22	3399	61	17	4	3393	59	54	39	3386
15	Saturn	W.	105	28	10	2962	106	59	10	2954	108	30	20	2946	110	1	41	2936
	a Pegasi	W.	97	25	47	3347	98	49	4	3342	100	12	28	3337	101	35	57	3332
	a Arietis	W.	53	58	0	3224	55	23	41	3207	56	49	41	3190	58	16	2	3174
	Sun	E.	53	0	30	3347	51	37	13	3338	50	13	45	3328	48	50	6	3319
16	*a* Arietis	W.	65	32	28	3098	67	0	40	3083	68	29	10	3069	69	57	58	3055
	Sun	E.	41	49	2	3267	40	24	12	3255	38	59	8	3244	37	33	51	3233
17	*a* Arietis	W.	77	26	17	2985	78	56	49	2972	80	27	37	2958	81	58	42	2945
	Sun	E.	30	24	0	3173	28	57	18	3161	27	30	22	3148	26	3	11	3137
22	Sun	W.	30	47	40	2723	32	23	49	2716	34	0	7	2709	35	36	35	2702

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
10	*a* Aquilæ	W.	96 35 35	3563	97 54 50	3575	99 13 52	3587	100 32 41	3598
	Fomalhaut	W.	62 31 48	3322	63 55 34	3321	65 19 21	3321	66 43 8	3320
	SATURN	W.	51 36 52	2984	53 7 25	2991	54 37 49	2997	56 8 5	3004
	a Pegasi	W.	48 52 54	3657	50 10 27	3637	51 28 21	3619	52 46 35	3602
	Aldebaran	E.	33 14 26	3008	31 44 23	3015	30 14 29	3022	28 44 44	3029
	JUPITER	E.	57 13 45	3085	55 45 17	3093	54 16 58	3101	52 48 49	3107
	Pollux	E.	77 36 5	3056	76 7 1	3065	74 38 8	3072	73 9 24	3079
	SUN	E.	102 15 45	3366	100 52 50	3374	99 30 4	3382	98 7 27	3389
11	*a* Aquilæ	W.	107 3 22	3665	108 20 46	3679	109 37 55	3694	110 54 48	3709
	Fomalhaut	W.	73 42 3	3322	75 5 49	3322	76 29 35	3322	77 53 21	3322
	SATURN	W.	63 37 30	3030	65 7 4	3034	66 36 34	3037	68 6 0	3040
	a Pegasi	W.	59 21 47	3538	60 41 29	3528	62 1 22	3518	63 21 26	3509
	Aldebaran	E.	21 17 54	3056	19 48 51	3061	18 19 54	3065	16 51 2	3069
	JUPITER	E.	45 30 0	3136	44 2 35	3140	42 35 15	3144	41 7 59	3148
	Pollux	E.	65 47 52	3111	64 19 56	3117	62 52 7	3122	61 24 24	3126
	SUN	E.	91 16 15	3418	89 54 19	3422	88 32 28	3426	87 10 41	3429
12	Fomalhaut	W.	84 52 13	3320	86 16 1	3319	87 39 50	3318	89 3 41	3317
	SATURN	W.	75 32 31	3047	77 1 45	3047	78 30 59	3046	80 0 14	3045
	a Pegasi	W.	70 4 3	3471	71 24 59	3464	72 46 3	3457	74 7 15	3450
	JUPITER	E.	33 52 38	3161	32 25 42	3163	30 58 48	3164	29 31 56	3165
	Pollux	E.	54 7 3	3145	52 39 48	3148	51 12 36	3150	49 45 27	3153
	SUN	E.	80 22 29	3438	79 0 55	3438	77 39 21	3437	76 17 46	3436
13	Fomalhaut	W.	96 3 17	3309	97 27 18	3307	98 51 22	3305	100 15 28	3303
	SATURN	W.	87 27 0	3034	88 56 31	3030	90 26 6	3026	91 55 46	3021
	a Pegasi	W.	80 55 4	3419	82 16 59	3412	83 39 2	3406	85 1 12	3400
	a Arietis	W.	37 20 18	3493	38 40 50	3463	40 1 56	3434	41 23 34	3407
	JUPITER	E.	22 17 56	3171	20 51 12	3173	19 24 31	3177	17 57 54	3182
	Pollux	E.	42 30 30	3166	41 3 40	3169	39 36 53	3172	38 10 10	3176
	SUN	E.	69 29 23	3423	68 7 33	3419	66 45 38	3415	65 23 38	3410
14	Fomalhaut	W.	107 16 35	3292	108 40 56	3290	110 5 19	3288	111 29 45	3286
	SATURN	W.	99 25 46	2992	100 56 9	2985	102 26 40	2978	103 57 20	2970
	a Pegasi	W.	91 53 43	3370	93 16 34	3364	94 39 32	3358	96 2 36	3352
	a Arietis	W.	48 18 45	3296	49 43 1	3277	51 7 39	3259	52 32 39	3241
	Pollux	E.	30 58 2	3209	29 32 3	3221	28 6 19	3236	26 40 52	3253
	SUN	E.	58 32 6	3379	57 9 25	3372	55 46 36	3364	54 23 38	3355
15	SATURN	W.	111 33 14	2927	113 4 58	2918	114 36 54	2908	116 9 3	2898
	a Pegasi	W.	102 59 32	3327	104 23 13	3323	105 46 58	3319	107 10 48	3314
	a Arietis	W.	59 42 42	3158	61 9 41	3143	62 36 58	3128	64 4 34	3113
	SUN	E.	47 26 17	3310	46 2 17	3299	44 38 4	3288	43 13 39	3278
16	*a* Arietis	W.	71 27 3	3041	72 56 25	3026	74 26 5	3012	75 56 2	2998
	SUN	E.	36 8 21	3221	34 42 37	3209	33 16 39	3198	31 50 27	3185
17	*a* Arietis	W.	83 30 4	2933	85 1 41	2920	86 33 35	2907	88 5 45	2894
	SUN	E.	24 35 46	3124	23 8 6	3112	21 40 11	3101	20 12 2	3088
22	SUN	W.	37 13 13	2695	38 49 59	2689	40 26 54	2683	42 3 58	2677

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
22	*a* Aquilæ	E.	114 52 11	3081	113 23 38	3057	111 54 36	3035	110 25 7	3015
23	Sun	W.	43 41 9	2671	45 18 28	2666	46 55 53	2660	48 33 26	2655
	a Aquilæ	E.	102 51 54	2935	101 20 19	2922	99 48 28	2912	98 16 24	2903
24	Sun	W.	56 42 45	2635	58 20 53	2631	59 59 6	2627	61 37 24	2624
	a Aquilæ	E.	90 33 31	2872	89 0 36	2869	87 27 37	2867	85 54 36	2867
25	Sun	W.	69 49 55	2610	71 28 36	2608	73 7 20	2606	74 46 7	2604
	a Aquilæ	E.	78 9 50	2881	76 37 7	2887	75 4 32	2895	73 32 7	2905
	Fomalhaut	E.	111 52 35	2588	110 13 24	2580	108 34 2	2573	106 54 30	2566
26	Sun	W.	83 0 34	2597	84 39 33	2596	86 18 33	2596	87 57 34	2595
	Spica	W.	33 30 38	2393	35 14 23	2384	36 58 21	2375	38 42 31	2368
	a Aquilæ	E.	65 53 38	2975	64 22 54	2995	62 52 35	3017	61 22 43	3041
	Fomalhaut	E.	98 34 46	2542	96 54 31	2539	95 14 12	2537	93 33 50	2535
	Saturn	E.	107 10 29	2267	105 23 41	2266	103 36 52	2265	101 50 1	2264
	a Pegasi	E.	113 16 54	2708	111 40 25	2697	110 3 41	2687	108 26 44	2679
27	Sun	W.	96 12 53	2593	97 51 58	2594	99 31 1	2594	101 10 5	2594
	Spica	W.	47 25 35	2344	49 10 30	2341	50 55 30	2339	52 40 34	2337
	a Aquilæ	E.	54 2 2	3209	52 36 3	3255	51 10 59	3305	49 46 53	3360
	Fomalhaut	E.	85 11 41	2536	83 31 17	2538	81 50 56	2540	80 10 38	2543
	Saturn	E.	92 55 33	2262	91 8 38	2263	89 21 44	2264	87 34 51	2263
	a Pegasi	E.	100 19 27	2649	98 41 38	2645	97 3 44	2643	95 25 47	2640
28	Sun	W.	109 25 9	2599	111 4 5	2601	112 42 59	2602	114 21 51	2604
	Spica	W.	61 26 25	2332	63 11 38	2331	64 56 52	2332	66 42 5	2332
	Fomalhaut	E.	71 50 31	2569	70 10 53	2577	68 31 26	2585	66 52 11	2594
	Saturn	E.	78 40 32	2267	76 53 44	2268	75 6 58	2270	73 20 14	2272
	a Pegasi	E.	87 15 46	2643	85 37 50	2647	83 59 59	2651	82 22 13	2655
29	Sun	W.	122 35 24	2618	124 13 55	2621	125 52 22	2624	127 30 45	2628
	Spica	W.	75 27 49	2340	77 12 51	2342	78 57 49	2344	80 42 44	2347
	Antares	W.	30 18 55	2525	31 59 34	2507	33 40 37	2493	35 22 0	2481
	Fomalhaut	E.	58 39 37	2660	57 2 2	2677	55 24 51	2696	53 48 6	2716
	Saturn	E.	64 27 17	2283	62 40 52	2285	60 54 31	2288	59 8 14	2291
	a Pegasi	E.	74 15 18	2692	72 38 27	2702	71 1 49	2713	69 25 26	2726
	a Arietis	E.	117 25 13	2499	115 43 59	2497	114 2 42	2495	112 21 22	2494
30	Spica	W.	89 26 6	2366	91 10 30	2371	92 54 46	2376	94 38 56	2381
	Antares	W.	43 52 12	2450	45 34 36	2448	47 17 3	2446	48 59 32	2445
	Saturn	E.	50 18 7	2311	48 32 23	2315	46 46 46	2320	45 1 16	2325
	a Pegasi	E.	61 28 22	2810	59 54 7	2831	58 20 20	2855	56 47 4	2882
	a Arietis	E.	103 54 30	2497	102 13 12	2499	100 31 58	2502	98 50 48	2506
31	Spica	W.	103 17 40	2412	105 0 57	2420	106 44 3	2427	108 26 59	2435
	Antares	W.	57 31 39	2456	59 13 54	2460	60 56 3	2465	62 38 6	2470
	Saturn	E.	36 15 45	2355	34 31 6	2362	32 46 36	2368	31 2 16	2376
	a Pegasi	E.	49 10 8	3054	47 41 2	3099	46 12 51	3149	44 45 40	3204
	a Arietis	E.	90 26 27	2532	88 45 58	2539	87 5 39	2546	85 25 30	2554
	Aldebaran	E.	122 33 24	2379	120 49 19	2385	119 5 23	2392	117 21 37	2399

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
22	*a* Aquilæ	E.	108 55 13	2996	107 24 55	2978	105 54 14	2962	104 23 13	2948
23	SUN	W.	50 11 6	2651	51 48 52	2646	53 26 44	2642	55 4 42	2638
	a Aquilæ	E.	96 44 8	2894	95 11 41	2887	93 39 5	2881	92 6 21	2876
24	SUN	W.	63 15 47	2621	64 54 13	2618	66 32 43	2615	68 11 17	2612
	a Aquilæ	E.	84 21 35	2867	82 48 34	2869	81 15 35	2872	79 42 40	2876
25	SUN	W.	76 24 56	2603	78 3 47	2601	79 42 41	2599	81 21 37	2597
	a Aquilæ	E.	71 59 54	2915	70 27 54	2927	68 56 10	2942	67 24 44	2958
	Fomalhaut	E.	105 14 49	2560	103 34 59	2554	101 55 1	2549	100 14 56	2545
26	SUN	W.	89 36 37	2594	91 15 40	2593	92 54 44	2593	94 33 48	2593
	Spica	W.	40 26 52	2362	42 11 22	2357	43 55 59	2352	45 40 44	2347
	a Aquilæ	E.	59 53 21	3068	58 24 32	3099	56 56 21	3132	55 28 50	3168
	Fomalhaut	E.	91 53 25	2534	90 12 59	2534	88 32 33	2534	86 52 7	2534
	SATURN	E.	100 3 9	2264	98 16 16	2263	96 29 22	2263	94 42 28	2262
	a Pegasi	E.	106 49 36	2671	105 12 17	2663	103 34 48	2657	101 57 11	2653
27	SUN	W.	102 49 8	2595	104 28 10	2596	106 7 11	2596	107 46 11	2598
	Spica	W.	54 25 40	2335	56 10 49	2334	57 55 59	2333	59 41 12	2332
	a Aquilæ	E.	48 23 51	3422	47 1 59	3491	45 41 25	3568	44 22 16	3653
	Fomalhaut	E.	78 30 24	2547	76 50 15	2551	75 10 13	2556	73 30 18	2562
	SATURN	E.	85 47 57	2264	84 1 4	2264	82 14 12	2265	80 27 21	2266
	a Pegasi	E.	93 47 47	2640	92 9 46	2640	90 31 45	2640	88 53 45	2641
28	SUN	W.	116 0 40	2607	117 39 26	2609	119 18 9	2612	120 56 48	2615
	Spica	W.	68 27 18	2333	70 12 29	2335	71 57 38	2336	73 42 45	2338
	Fomalhaut	E.	65 13 8	2605	63 34 19	2617	61 55 47	2630	60 17 32	2644
	SATURN	E.	71 33 33	2274	69 46 54	2276	68 0 19	2278	66 13 46	2280
	a Pegasi	E.	80 44 33	2660	79 7 0	2667	77 29 36	2675	75 52 21	2683
29	SUN	W.	129 9 2	2632	130 47 13	2636	132 25 19	2641	134 3 19	2646
	Spica	W.	82 27 35	2351	84 12 21	2355	85 57 1	2358	87 41 36	2362
	Antares	W.	37 3 40	2471	38 45 34	2464	40 27 39	2458	42 9 52	2453
	Fomalhaut	E.	52 11 48	2740	50 36 1	2766	49 0 48	2794	47 26 12	2825
	SATURN	E.	57 22 2	2295	55 35 55	2298	53 49 53	2302	52 3 57	2307
	a Pegasi	E.	67 49 21	2740	66 13 34	2755	64 38 7	2772	63 3 3	2790
	a Arietis	E.	110 40 0	2493	108 58 37	2493	107 17 14	2493	105 35 51	2495
30	Spica	W.	96 22 58	2387	98 6 52	2393	99 50 37	2399	101 34 13	2405
	Antares	W.	50 42 2	2447	52 24 30	2448	54 6 56	2450	55 49 19	2453
	SATURN	E.	43 15 53	2331	41 30 38	2337	39 45 32	2342	38 0 34	2348
	a Pegasi	E.	55 14 22	2910	53 42 16	2941	52 10 49	2975	50 40 5	3013
	a Arietis	E.	97 9 42	2510	95 28 42	2515	93 47 50	2520	92 7 5	2525
31	Spica	W.	110 9 44	2444	111 52 17	2453	113 34 37	2461	115 16 45	2470
	Antares	W.	64 20 3	2476	66 1 52	2481	67 43 32	2488	69 25 2	2494
	SATURN	E.	29 18 7	2383	27 34 8	2391	25 50 21	2399	24 6 45	2408
	a Pegasi	E.	43 19 35	3265	41 54 42	3333	40 31 7	3408	39 8 59	3492
	a Arietis	E.	83 45 32	2563	82 5 46	2572	80 26 12	2582	78 46 51	2592
	Aldebaran	E.	115 38 1	2407	113 54 36	2415	112 11 22	2423	110 28 19	2431

AT GREENWICH APPARENT NOON.

		THE SUN'S							
Day of the Week.	Day of the Month.	Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to / Subtracted from Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Sat.	1	10 39 6.52	9.075	N. 8 31 38.9	− 54.20	15 52.98	64.40	0 9.12	0.779
SUN.	2	10 42 44.17	9.063	8 9 54.1	54.53	15 53.21	64.36	0 9.72	0.791
Mon.	3	10 46 21.53	9.051	7 48 1.5	54.85	15 53.45	64.32	0 28.86	0.803
Tues.	4	10 49 58.62	9.040	7 26 1.3	− 55.16	15 53.68	64.28	0 48.27	0.814
Wed.	5	10 53 35.45	9.030	7 3 53.9	55.46	15 53.91	64.24	1 7.94	0.824
Thur.	6	10 57 12.06	9.021	6 41 39.5	55.74	15 54.14	64.20	1 27.83	0.833
Frid.	7	11 0 48.46	9.013	6 19 18.6	− 56.01	15 54.38	64.17	1 47.92	0.841
Sat.	8	11 4 24.67	9.006	5 56 51.3	56.27	15 54.62	64.14	2 8.21	0.849
SUN.	9	11 8 0.71	8.999	5 34 17.9	56.51	15 54.86	64.12	2 28.67	0.856
Mon.	10	11 11 36.60	8.993	5 11 38.9	− 56.74	15 55.10	64.09	2 49.28	0.862
Tues.	11	11 15 12.35	8.988	4 48 54.6	56.96	15 55.35	64.07	3 10.01	0.866
Wed.	12	11 18 48.00	8.984	4 26 5.2	57.16	15 55.59	64.05	3 30.86	0.870
Thur.	13	11 22 23.55	8.980	4 3 11.1	− 57.35	15 55.84	64.04	3 51.81	0.874
Frid.	14	11 25 59.03	8.977	3 40 12.5	57.53	15 56.09	64.03	4 12.83	0.877
Sat.	15	11 29 34.45	8.975	3 17 10.0	57.69	15 56.34	64.02	4 33.89	0.879
SUN.	16	11 33 9.83	8.974	2 54 3.7	− 57.84	15 56.60	64.01	4 54.99	0.880
Mon.	17	11 36 45.20	8.973	2 30 54.1	57.97	15 56.86	64.01	5 16.13	0.881
Tues.	18	11 40 20.56	8.973	2 7 41.4	58.09	15 57.12	64.01	5 37.28	0.881
Wed.	19	11 43 55.91	8.974	1 44 26.0	− 58.19	15 57.38	64.01	5 58.41	0.880
Thur.	20	11 47 31.30	8.976	1 21 8.4	58.28	15 57.65	64.02	6 19.52	0.878
Frid.	21	11 51 6.74	8.978	0 57 48.9	58.35	15 57.92	64.03	6 40.57	0.876
Sat.	22	11 54 42.22	8.981	0 34 27.6	− 58.41	15 58.19	64.04	7 1.58	0.873
SUN.	23	11 58 17.77	8.984	N. 0 11 5.3	58.45	15 58.47	64.06	7 22.52	0.870
Mon.	24	12 1 53.43	8.988	S. 0 12 17.9	58.48	15 58.74	64.08	7 43.36	0.866
Tues.	25	12 5 29.21	8.993	0 35 41.5	− 58.50	15 59.02	64.10	8 4.08	0.861
Wed.	26	12 9 5.12	8.999	0 59 5.5	58.50	15 59.30	64.12	8 24.67	0.855
Thur.	27	12 12 41.16	9.006	1 22 29.4	58.48	15 59.58	64.15	8 45.11	0.848
Frid.	28	12 16 17.40	9.014	1 45 52.6	− 58.45	15 59.85	64.18	9 5.38	0.840
Sat.	29	12 19 53.84	9.023	2 9 15.0	58.41	16 0.13	64.21	9 25.44	0.831
SUN.	30	12 23 30.50	9.033	2 32 36.1	58.35	16 0.41	64.25	9 45.29	0.821
Mon.	31	12 27 7.41	9.044	S. 2 55 55.7	− 58.28	16 0.69	64.29	10 4.87	0.810

Note.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.18$ from the sidereal time. The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing; south declinations increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Apparent Declination.	THE SUN'S Diff. for 1 Hour.	Equation of Time, to be Subtracted from / Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Sat.	1	10 39 6.50	9.077	N. 8 31 39.0	− 54.21	0 9.13	0.779	10 38 57.37
SUN.	2	10 42 44.20	9.065	8 9 54.0	54.54	0 9.72	0.791	10 42 53.92
Mon.	3	10 46 21.60	9.053	7 48 1.1	54.86	0 28.87	0.803	10 46 50.47
Tues.	4	10 49 58.74	9.042	7 26 0.6	− 55.17	0 48.28	0.814	10 50 47.02
Wed.	5	10 53 35.62	9.032	7 3 52.9	55.47	1 7.96	0.824	10 54 43.58
Thur.	6	10 57 12.28	9.023	6 41 38.2	55.75	1 27.85	0.833	10 58 40.13
Frid.	7	11 0 48.73	9.015	6 19 17.0	− 56.02	1 47.95	0.841	11 2 36.68
Sat.	8	11 4 24.99	9.008	5 56 49.3	56.28	2 8.24	0.849	11 6 33.23
SUN.	9	11 8 1.08	9.001	5 34 15.7	56.52	2 28.71	0.856	11 10 29.79
Mon.	10	11 11 37.02	8.995	5 11 36.3	− 56.75	2 49.32	0.862	11 14 26.34
Tues.	11	11 15 12.83	8.990	4 48 51.6	56.97	3 10.06	0.866	11 18 22.89
Wed.	12	11 18 48.53	8.986	4 26 1.9	57.17	3 30.91	0.870	11 22 19.44
Thur.	13	11 22 24.13	8.982	4 3 7.4	− 57.36	3 51.87	0.874	11 26 16.00
Frid.	14	11 25 59.66	8.979	3 40 8.5	57.54	4 12.89	0.877	11 30 12.55
Sat.	15	11 29 35.14	8.977	3 17 5.6	57.70	4 33.96	0.879	11 34 9.10
SUN.	16	11 33 10.57	8.976	2 53 59.0	− 57.85	4 55.08	0.880	11 38 5.65
Mon.	17	11 36 45.99	8.975	2 30 49.0	57.98	5 16.21	0.881	11 42 2.20
Tues.	18	11 40 21.40	8.975	2 7 36.0	58.10	5 37.36	0.881	11 45 58.76
Wed.	19	11 43 56.81	8.976	1 44 20.3	− 58.20	5 58.50	0.880	11 49 55.31
Thur.	20	11 47 32.25	8.978	1 21 2.3	58.29	6 19.61	0.878	11 53 51.86
Frid.	21	11 51 7.74	8.980	0 57 42.4	58.36	6 40.67	0.876	11 57 48.41
Sat.	22	11 54 43.28	8.983	0 34 20.8	− 58.42	7 1.68	0.873	12 1 44.96
SUN.	23	11 58 18.89	8.986	N. 0 10 58.1	58.46	7 22.63	0.870	12 5 41.52
Mon.	24	12 1 54.60	8.990	S. 0 12 25.4	58.49	7 43.47	0.866	12 9 38.07
Tues.	25	12 5 30.42	8.995	0 35 49.4	− 58.51	8 4.20	0.861	12 13 34.62
Wed.	26	12 9 6.38	9.001	0 59 13.7	58.51	8 24.80	0.855	12 17 31.17
Thur.	27	12 12 42.48	9.008	1 22 37.9	58.49	8 45.25	0.848	12 21 27.73
Frid.	28	12 16 18.77	9.016	1 46 1.4	− 58.46	9 5.51	0.840	12 25 24.28
Sat.	29	12 19 55.26	9.025	2 9 24.1	58.42	9 25.57	0.831	12 29 20.83
SUN.	30	12 23 31.96	9.035	2 32 45.6	58.36	9 45.42	0.821	12 33 17.38
Mon.	31	12 27 8.93	9.046	S. 2 56 5.5	− 58.29	10 5.01	0.810	12 37 13.94

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing; south declinations increasing.

Diff. for 1 Hour,
$+ 9^{s}.8565$.
(Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.			
		λ	λ'					
		° ′ ″	′ ″	″	″			h m s
1	244	158 7 40.4	7 19.5	145.16	— 0.38	0.003 8628	- 43.6	13 18 51.40
2	245	159 5 44.9	5 23.9	145.22	0.51	0.003 7579	43.8	13 14 55.50
3	246	160 3 51.1	3 30.0	145.29	0.63	0.003 6525	44.0	13 10 59.59
4	247	161 1 59.0	1 37.9	145.36	— 0.74	0.003 5466	- 44.2	13 7 3.68
5	248	161 60 8.7	59 47.5	145.44	0.81	0.003 4402	44.5	13 3 7.78
6	249	162 58 20.3	57 59.0	145.52	0.86	0.003 3332	44.7	12 59 11.87
7	250	163 56 33.9	56 12.5	145.61	— 0.89	0.003 2255	- 45.0	12 55 15.96
8	251	164 54 49.4	54 27.9	145.69	0.89	0.003 1173	45.3	12 51 20.06
9	252	165 53 7.0	52 45.4	145.77	0.86	0.003 0082	45.6	12 47 24.15
10	253	166 51 26.6	51 4.9	145.86	— 0.80	0.002 8984	- 46.0	12 43 28.24
11	254	167 49 48.3	49 26.5	145.95	0.72	0.002 7877	46.3	12 39 32.34
12	255	168 48 12.0	47 50.2	146.04	0.62	0.002 6761	46.7	12 35 36.43
13	256	169 46 37.9	46 16.0	146.12	— 0.51	0.002 5635	- 47.1	12 31 40.52
14	257	170 45 5.9	44 43.9	146.21	0.38	0.002 4498	47.6	12 27 44.62
15	258	171 43 36.0	43 13.9	146.30	0.25	0.002 3349	48.1	12 23 48.71
16	259	172 42 8.2	41 46.0	146.38	— 0.12	0.002 2189	- 48.6	12 19 52.80
17	260	173 40 42.3	40 20.1	146.47	+ 0.01	0.002 1016	49.1	12 15 56.90
18	261	174 39 18.5	38 56.2	146.55	0.13	0.001 9830	49.7	12 12 0.99
19	262	175 37 56.6	37 34.2	146.63	+ 0.20	0.001 8631	- 50.2	12 8 5.08
20	263	176 36 36.6	36 14.1	146.70	0.25	0.001 7420	50.7	12 4 9.18
21	264	177 35 18.4	34 55.8	146.78	0.28	0.001 6197	51.2	12 0 13.27
22	265	178 34 1.9	33 39.2	146.85	+ 0.28	0.001 4963	- 51.6	11 56 17.37
23	266	179 32 47.2	32 24.4	146.92	0.24	0.001 3721	51.9	11 52 21.46
24	267	180 31 34.1	31 11.2	146.99	0.17	0.001 2471	52.2	11 48 25.55
25	268	181 30 22.7	29 59.8	147.06	+ 0.08	0.001 1216	- 52.4	11 44 29.65
26	269	182 29 13.0	28 50.0	147.13	— 0.04	0.000 9957	52.5	11 40 33.74
27	270	183 28 5.0	27 41.9	147.20	0.18	0.000 8696	52.5	11 36 37.84
28	271	184 26 58.8	26 35.6	147.28	— 0.32	0.000 7435	- 52.5	11 32 41.93
29	272	185 25 54.3	25 31.0	147.35	0.44	0.000 6174	52.4	11 28 46.02
30	273	186 24 51.7	24 28.3	147.43	0.56	0.000 4917	52.3	11 24 50.12
31	274	187 23 51.0	23 27.5	147.51	— 0.67	0.000 3662	- 52.2	11 20 54.21

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ' are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour,
$-9^{s}.8296$.
(Table II.)

GREENWICH MEAN TIME.

Day of the Month.	THE MOON'S								
	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 51.3	15 47.1	58 5.2	– 1.22	57 49.9	– 1.32	11 13.7	2.17	12.4
2	15 42.6	15 37.9	57 33.4	1.41	57 16.0	1.48	12 4.4	2.05	13.4
3	15 33.0	15 27.9	56 58.0	1.52	56 39.5	1.55	12 52.4	1.96	14.4
4	15 22.9	15 17.9	56 20.9	– 1.54	56 2.6	– 1.50	13 38.4	1.88	15.4
5	15 13.0	15 8.4	55 44.8	1.45	55 27.8	1.37	14 23.0	1.84	16.4
6	15 4.1	15 0.2	55 11.9	1.26	54 57.6	1.13	15 6.9	1.83	17.4
7	14 56.7	14 53.8	54 44.9	– 0.98	54 34.1	– 0.81	15 50.9	1.84	18.4
8	14 51.4	14 49.7	54 25.4	0.63	54 19.0	0.43	16 35.4	1.88	19.4
9	14 48.6	14 48.2	54 15.0	– 0.23	54 13.5	– 0.01	17 20.9	1.92	20.4
10	14 48.5	14 49.5	54 14.7	+ 0.20	54 18.4	+ 0.42	18 7.8	1.98	21.4
11	14 51.2	14 53.7	54 24.7	0.63	54 33.6	0.84	18 56.1	2.04	22.4
12	14 56.8	15 0.5	54 45.0	1.04	54 58.7	1.23	19 45.6	2.08	23.4
13	15 4.8	15 9.6	55 14.6	+ 1.40	55 32.3	+ 1.55	20 35.9	2.11	24.4
14	15 14.9	15 20.6	55 51.7	1.67	56 12.5	1.77	21 26.7	2.12	25.4
15	15 26.5	15 32.5	56 34.2	1.83	56 56.5	1.86	22 17.5	2.11	26.4
16	15 38.6	15 44.8	57 18.9	+ 1.86	57 41.1	+ 1.82	23 8.2	2.11	27.4
17	15 50.5	15 56.0	58 2.6	1.73	58 22.8	1.62	23 58.8	2.11	28.4
18	16 1.1	16 5.7	58 41.5	1.48	58 58.3	1.30	6	. .	29.4
19	16 9.6	16 12.8	59 12.7	+ 1.10	59 24.6	+ 0.89	0 49.8	2.13	1.0
20	16 15.4	16 17.2	59 34.0	0.67	59 40.6	0.44	1 41.4	2.18	2.0
21	16 18.3	16 18.6	59 44.5	+ 0.22	59 45.8	+ 0.01	2 34.3	2.24	3.0
22	16 18.4	16 17.5	59 44.7	– 0.18	59 41.4	– 0.36	3 28.9	2.31	4.0
23	16 16.0	16 14.1	59 36.1	0.51	59 29.1	0.64	4 25.2	2.38	5.0
24	16 11.8	16 9.1	59 20.6	0.76	59 10.8	0.85	5 22.9	2.42	6.0
25	16 6.2	16 3.0	59 0.0	– 0.93	58 48.4	– 1.00	6 21.1	2.41	7.0
26	15 59.7	15 56.2	58 36.1	1.05	58 23.3	1.08	7 18.5	2.36	8.0
27	15 52.6	15 48.9	58 10.0	1.12	57 56.4	1.15	8 14.2	2.27	9.0
28	15 45.1	15 41.2	57 42.4	– 1.18	57 28.2	– 1.20	9 7.5	2.16	10.0
29	15 37.2	15 33.2	57 13.7	1.21	56 59.0	1.23	9 58.0	2.05	11.0
30	15 29.2	15 25.1	56 44.1	1.24	56 29.2	1.25	10 46.1	1.96	12.0
31	15 21.0	15 16.9	56 14.3	– 1.25	55 59.4	– 1.24	11 32.2	1.89	13.0

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 1.					MONDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	21 28 51.21	2.3091	S. 15 38 42.4	7.794	0	23 14 36.03	2.1028	S. 8 7 5.4	10.582
1	21 31 9.62	2.3047	15 30 52.2	7.880	1	23 16 42.08	2.0990	7 56 29.6	10.612
2	21 33 27.77	2.3003	15 22 56.8	7.964	2	23 18 47.91	2.0953	7 45 52.0	10.641
3	21 35 45.65	2.2958	15 14 56.5	8.047	3	23 20 53.51	2.0916	7 35 12.7	10.669
4	21 38 3.26	2.2913	15 6 51.2	8.128	4	23 22 58.90	2.0880	7 24 31.7	10.697
5	21 40 20.60	2.2868	14 58 41.1	8.209	5	23 25 4.07	2.0843	7 13 49.1	10.723
6	21 42 37.67	2.2823	14 50 26.1	8.289	6	23 27 9.02	2.0808	7 3 4.9	10.748
7	21 44 54.47	2.2778	14 42 6.4	8.367	7	23 29 13.76	2.0773	6 52 19.3	10.773
8	21 47 11.00	2.2733	14 33 42.1	8.443	8	23 31 18.29	2.0738	6 41 32.2	10.797
9	21 49 27.26	2.2688	14 25 13.2	8.520	9	23 33 22.61	2.0703	6 30 43.7	10.818
10	21 51 43.25	2.2643	14 16 39.7	8.595	10	23 35 26.73	2.0669	6 19 54.0	10.839
11	21 53 58.97	2.2598	14 8 1.8	8.668	11	23 37 30.64	2.0635	6 9 3.0	10.860
12	21 56 14.42	2.2553	13 59 19.5	8.741	12	23 39 34.35	2.0602	5 58 10.8	10.879
13	21 58 29.60	2.2507	13 50 32.9	8.813	13	23 41 37.86	2.0569	5 47 17.5	10.897
14	22 0 44.50	2.2462	13 41 42.0	8.883	14	23 43 41.18	2.0537	5 36 23.2	10.914
15	22 2 59.14	2.2417	13 32 47.0	8.951	15	23 45 44.30	2.0504	5 25 27.8	10.931
16	22 5 13.50	2.2372	13 23 47.9	9.018	16	23 47 47.23	2.0473	5 14 31.5	10.946
17	22 7 27.60	2.2328	13 14 44.8	9.086	17	23 49 49.97	2.0442	5 3 34.3	10.960
18	22 9 41.43	2.2283	13 5 37.6	9.152	18	23 51 52.53	2.0411	4 52 36.3	10.973
19	22 11 54.99	2.2238	12 56 26.6	9.215	19	23 53 54.90	2.0380	4 41 37.5	10.986
20	22 14 8.28	2.2193	12 47 11.8	9.278	20	23 55 57.09	2.0351	4 30 38.0	10.997
21	22 16 21.30	2.2148	12 37 53.2	9.340	21	23 57 59.11	2.0321	4 19 37.9	11.008
22	22 18 34.06	2.2104	12 28 31.0	9.401	22	0 0 0.94	2.0291	4 8 37.1	11.018
23	22 20 46.55	2.2060	S. 12 19 5.1	9.461	23	0 2 2.60	2.0263	S. 3 57 35.8	11.026
	SUNDAY 2.					TUESDAY 4.			
0	22 22 58.78	2.2016	S. 12 9 35.7	9.519	0	0 4 4.09	2.0234	S. 3 46 34.0	11.033
1	22 25 10.74	2.1972	12 0 2.8	9.576	1	0 6 5.41	2.0207	3 35 31.8	11.040
2	22 27 22.44	2.1928	11 50 26.6	9.632	2	0 8 6.57	2.0179	3 24 29.2	11.046
3	22 29 33.88	2.1885	11 40 47.0	9.688	3	0 10 7.56	2.0152	3 13 26.3	11.051
4	22 31 45.06	2.1842	11 31 4.1	9.742	4	0 12 8.39	2.0125	3 2 23.1	11.055
5	22 33 55.98	2.1798	11 21 18.0	9.794	5	0 14 9.06	2.0099	2 51 19.7	11.058
6	22 36 6.64	2.1755	11 11 28.8	9.846	6	0 16 9.58	2.0073	2 40 16.1	11.061
7	22 38 17.04	2.1713	11 1 36.5	9.896	7	0 18 9.94	2.0048	2 29 12.4	11.062
8	22 40 27.19	2.1670	10 51 41.3	9.945	8	0 20 10.16	2.0024	2 18 8.7	11.063
9	22 42 37.08	2.1628	10 41 43.1	9.994	9	0 22 10.23	2.0000	2 7 4.9	11.063
10	22 44 46.72	2.1586	10 31 42.0	10.041	10	0 24 10.16	1.9976	1 56 1.2	11.061
11	22 46 56.11	2.1543	10 21 38.2	10.087	11	0 26 9.94	1.9953	1 44 57.6	11.058
12	22 49 5.24	2.1502	10 11 31.6	10.132	12	0 28 9.59	1.9930	1 33 54.2	11.055
13	22 51 14.13	2.1461	10 1 22.4	10.175	13	0 30 9.10	1.9908	1 22 51.0	11.052
14	22 53 22.77	2.1420	9 51 10.6	10.217	14	0 32 8.48	1.9885	1 11 48.0	11.048
15	22 55 31.17	2.1380	9 40 56.3	10.258	15	0 34 7.72	1.9863	1 0 45.3	11.043
16	22 57 39.33	2.1339	9 30 39.6	10.298	16	0 36 6.84	1.9843	0 49 42.9	11.036
17	22 59 47.24	2.1298	9 20 20.5	10.338	17	0 38 5.84	1.9823	0 38 41.0	11.028
18	23 1 54.91	2.1259	9 9 59.1	10.376	18	0 40 4.71	1.9802	0 27 39.5	11.021
19	23 4 2.35	2.1220	8 59 35.4	10.413	19	0 42 3.46	1.9782	0 16 38.5	11.013
20	23 6 9.55	2.1181	8 49 9.5	10.449	20	0 44 2.09	1.9763	S. 0 5 38.0	11.003
21	23 8 16.52	2.1142	8 38 41.5	10.484	21	0 46 0.61	1.9744	N. 0 5 21.9	10.993
22	23 10 23.25	2.1103	8 28 11.4	10.518	22	0 47 59.02	1.9726	0. 16 21.2	10.982
23	23 12 29.75	2.1065	8 17 39.4	10.550	23	0 49 57.32	1.9708	0 27 19.7	10.969
24	23 14 36.03	2.1028	S. 8 7 5.4	10.582	24	0 51 55.52	1.9691	N. 0 38 17.5	10.957

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 5.					FRIDAY 7.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	0 51 55.52	1.9691	N. 0 38 17.5	10.957	0	2 25 17.71	1.9382	N. 8 56 23.4	9.548
1	0 53 53.61	1.9673	0 49 14.6	10.944	1	2 27 14.01	1.9385	9 5 55.0	9.504
2	0 55 51.60	1.9658	1 0 10.8	10.930	2	2 29 10.33	1.9389	9 15 23.9	9.459
3	0 57 49.50	1.9642	1 11 6.2	10.915	3	2 31 6.68	1.9394	9 24 50.1	9.413
4	0 59 47.30	1.9625	1 22 0.6	10.899	4	2 33 3.06	1.9399	9 34 13.5	9.368
5	1 1 45.00	1.9610	1 32 54.1	10.883	5	2 34 59.47	1.9405	9 43 34.2	9.321
6	1 3 42.62	1.9596	1 43 46.6	10.867	6	2 36 55.92	1.9411	9 52 52.0	9.273
7	1 5 40.15	1.9582	1 54 38.1	10.849	7	2 38 52.40	1.9418	10 2 7.0	9.227
8	1 7 37.60	1.9568	2 5 28.5	10.830	8	2 40 48.93	1.9424	10 11 19.2	9.178
9	1 9 34.97	1.9555	2 16 17.7	10.810	9	2 42 45.49	1.9430	10 20 28.4	9.129
10	1 11 32.26	1.9542	2 27 5.7	10.791	10	2 44 42.09	1.9438	10 29 34.7	9.080
11	1 13 29.47	1.9529	2 37 52.6	10.770	11	2 46 38.74	1.9445	10 38 38.0	9.030
12	1 15 26.61	1.9518	2 48 38.1	10.748	12	2 48 35.43	1.9453	10 47 38.3	8.979
13	1 17 23.68	1.9506	2 59 22.4	10.727	13	2 50 32.18	1.9462	10 56 35.5	8.928
14	1 19 20.68	1.9495	3 10 5.3	10.704	14	2 52 28.97	1.9470	11 5 29.7	8.878
15	1 21 17.62	1.9485	3 20 46.8	10.680	15	2 54 25.82	1.9480	11 14 20.8	8.826
16	1 23 14.50	1.9475	3 31 26.9	10.657	16	2 56 22.73	1.9489	11 23 8.8	8.773
17	1 25 11.32	1.9465	3 42 5.6	10.632	17	2 58 19.69	1.9499	11 31 53.6	8.720
18	1 27 8.08	1.9456	3 52 42.7	10.606	18	3 0 16.72	1.9509	11 40 35.2	8.667
19	1 29 4.79	1.9447	4 3 18.3	10.579	19	3 2 13.80	1.9519	11 49 13.6	8.613
20	1 31 1.44	1.9438	4 13 52.2	10.553	20	3 4 10.95	1.9530	11 57 48.7	8.558
21	1 32 58.05	1.9431	4 24 24.6	10.526	21	3 6 8.16	1.9541	12 6 20.6	8.503
22	1 34 54.61	1.9423	4 34 55.3	10.497	22	3 8 5.44	1.9553	12 14 49.1	8.448
23	1 36 51.13	1.9417	N. 4 45 24.2	10.468	23	3 10 2.79	1.9564	N. 12 23 14.3	8.393
	THURSDAY 6.					SATURDAY 8.			
0	1 38 47.61	1.9410	N. 4 55 51.4	10.438	0	3 12 0.21	1.9576	N. 12 31 36.2	8.336
1	1 40 44.05	1.9404	5 6 16.8	10.408	1	3 13 57.70	1.9588	12 39 54.6	8.278
2	1 42 40.46	1.9398	5 16 40.4	10.378	2	3 15 55.27	1.9602	12 48 9.6	8.222
3	1 44 36.83	1.9393	5 27 2.2	10.347	3	3 17 52.92	1.9614	12 56 21.2	8.163
4	1 46 33.17	1.9388	5 37 22.0	10.314	4	3 19 50.64	1.9627	13 4 29.2	8.104
5	1 48 29.49	1.9384	5 47 39.9	10.282	5	3 21 48.44	1.9641	13 12 33.7	8.045
6	1 50 25.78	1.9380	5 57 55.9	10.249	6	3 23 46.33	1.9655	13 20 34.6	7.986
7	1 52 22.05	1.9377	6 8 9.8	10.215	7	3 25 44.30	1.9668	13 28 32.0	7.926
8	1 54 18.30	1.9373	6 18 21.7	10.180	8	3 27 42.35	1.9683	13 36 25.7	7.865
9	1 56 14.53	1.9371	6 28 31.4	10.145	9	3 29 40.49	1.9698	13 44 15.8	7.804
10	1 58 10.75	1.9369	6 38 39.1	10.110	10	3 31 38.72	1.9713	13 52 2.2	7.743
11	2 0 6.96	1.9368	6 48 44.6	10.073	11	3 33 37.05	1.9728	13 59 44.9	7.680
12	2 2 3.16	1.9366	6 58 47.9	10.037	12	3 35 35.46	1.9743	14 7 23.8	7.618
13	2 3 59.35	1.9365	7 8 49.0	9.999	13	3 37 33.97	1.9759	14 14 59.0	7.555
14	2 5 55.54	1.9364	7 18 47.8	9.961	14	3 39 32.57	1.9775	14 22 30.4	7.492
15	2 7 51.72	1.9364	7 28 44.3	9.922	15	3 41 31.27	1.9792	14 29 58.0	7.428
16	2 9 47.91	1.9365	7 38 38.4	9.883	16	3 43 30.07	1.9808	14 37 21.7	7.363
17	2 11 44.10	1.9365	7 48 30.2	9.843	17	3 45 28.97	1.9825	14 44 41.6	7.298
18	2 13 40.29	1.9366	7 58 19.6	9.803	18	3 47 27.97	1.9842	14 51 57.5	7.233
19	2 15 36.49	1.9368	8 8 6.6	9.762	19	3 49 27.07	1.9859	14 59 9.5	7.167
20	2 17 32.71	1.9370	8 17 51.0	9.720	20	3 51 26.28	1.9877	15 6 17.5	7.101
21	2 19 28.93	1.9372	8 27 33.0	9.678	21	3 53 25.59	1.9894	15 13 21.6	7.034
22	2 21 25.17	1.9375	8 37 12.4	9.635	22	3 55 25.01	1.9912	15 20 21.6	6.966
23	2 23 21.43	1.9378	8 46 49.2	9.592	23	3 57 24.53	1.9929	15 27 17.5	6.898
24	2 25 17.71	1.9382	N. 8 56 23.4	9.548	24	3 59 24.16	1.9948	N. 15 34 9.3	6.830

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 9.					TUESDAY 11.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	3 59 24.16	1.9948	N.15 34 9.3	6.830	0	5 37 31.85	2.0965	N.19 34 35.3	3.018
1	4 1 23.90	1.9967	15 40 57.1	6.762	1	5 39 37.70	2.0987	19 37 33.7	2.929
2	4 3 23.76	1.9986	15 47 40.7	6.692	2	5 41 43.69	2.1008	19 40 26.8	2.839
3	4 5 23.73	2.0004	15 54 20.1	6.622	3	5 43 49.80	2.1029	19 43 14.4	2.748
4	4 7 23.81	2.0023	16 0 55.3	6.552	4	5 45 56.04	2.1051	19 45 56.5	2.657
5	4 9 24.01	2.0043	16 7 26.3	6.482	5	5 48 2.41	2.1073	19 48 33.2	2.566
6	4 11 24.33	2.0063	16 13 53.1	6.411	6	5 50 8.91	2.1093	19 51 4.4	2.474
7	4 13 24.76	2.0082	16 20 15.6	6.338	7	5 52 15.53	2.1114	19 53 30.1	2.382
8	4 15 25.31	2.0102	16 26 33.7	6.266	8	5 54 22.28	2.1135	19 55 50.2	2.289
9	4 17 25.98	2.0122	16 32 47.5	6.194	9	5 56 29.15	2.1156	19 58 4.8	2.197
10	4 19 26.77	2.0142	16 38 57.0	6.122	10	5 58 36.15	2.1177	20 0 13.8	2.103
11	4 21 27.68	2.0163	16 45 2.1	6.048	11	6 0 43.27	2.1198	20 2 17.2	2.010
12	4 23 28.72	2.0183	16 51 2.8	5.974	12	6 2 50.52	2.1218	20 4 15.0	1.917
13	4 25 29.88	2.0203	16 56 59.0	5.900	13	6 4 57.89	2.1238	20 6 7.2	1.823
14	4 27 31.16	2.0223	17 2 50.8	5.825	14	6 7 5.38	2.1258	20 7 53.7	1.728
15	4 29 32.56	2.0244	17 8 38.0	5.749	15	6 9 12.99	2.1278	20 9 34.5	1.633
16	4 31 34.09	2.0266	17 14 20.7	5.674	16	6 11 20.72	2.1298	20 11 9.6	1.538
17	4 33 35.75	2.0287	17 19 58.9	5.598	17	6 13 28.56	2.1318	20 12 39.0	1.443
18	4 35 37.53	2.0308	17 25 32.4	5.521	18	6 15 36.53	2.1338	20 14 2.7	1.347
19	4 37 39.44	2.0329	17 31 1.4	5.444	19	6 17 44.61	2.1357	20 15 20.6	1.250
20	4 39 41.48	2.0350	17 36 25.7	5.367	20	6 19 52.81	2.1376	20 16 32.7	1.154
21	4 41 43.64	2.0372	17 41 45.4	5.288	21	6 22 1.12	2.1394	20 17 39.1	1.057
22	4 43 45.94	2.0393	17 47 0.3	5.209	22	6 24 9.54	2.1413	20 18 39.6	0.960
23	4 45 48.36	2.0415	N.17 52 10.5	5.131	23	6 26 18.08	2.1432	N.20 19 34.3	0.863
	MONDAY 10.					WEDNESDAY 12.			
0	4 47 50.92	2.0437	N.17 57 16.0	5.052	0	6 28 26.72	2.1450	N.20 20 23.2	0.766
1	4 49 53.61	2.0458	18 2 16.7	4.972	1	6 30 35.48	2.1469	20 21 6.2	0.668
2	4 51 56.42	2.0480	18 7 12.6	4.892	2	6 32 44.35	2.1487	20 21 43.3	0.569
3	4 53 59.37	2.0502	18 12 3.7	4.811	3	6 34 53.32	2.1504	20 22 14.5	0.471
4	4 56 2.44	2.0523	18 16 49.9	4.729	4	6 37 2.40	2.1522	20 22 39.8	0.373
5	4 58 5.65	2.0547	18 21 31.2	4.648	5	6 39 11.58	2.1539	20 22 59.2	0.273
6	5 0 9.00	2.0568	18 26 7.7	4.567	6	6 41 20.87	2.1557	20 23 12.6	0.174
7	5 2 12.47	2.0590	18 30 39.2	4.483	7	6 43 30.26	2.1573	20 23 20.1	0.075
8	5 4 16.08	2.0613	18 35 5.7	4.400	8	6 45 39.74	2.1589	20 23 21.6	0.025
9	5 6 19.82	2.0634	18 39 27.2	4.318	9	6 47 49.33	2.1607	20 23 17.1	0.125
10	5 8 23.69	2.0657	18 43 43.8	4.234	10	6 49 59.02	2.1623	20 23 6.6	0.225
11	5 10 27.70	2.0679	18 47 55.3	4.149	11	6 52 8.80	2.1638	20 22 50.1	0.325
12	5 12 31.84	2.0701	18 52 1.7	4.065	12	6 54 18.67	2.1653	20 22 27.6	0.426
13	5 14 36.11	2.0723	18 56 3.1	3.980	13	6 56 28.64	2.1669	20 21 59.0	0.527
14	5 16 40.51	2.0745	18 59 59.3	3.894	14	6 58 38.70	2.1684	20 21 24.4	0.628
15	5 18 45.05	2.0768	19 3 50.4	3.809	15	7 0 48.85	2.1699	20 20 43.7	0.728
16	5 20 49.73	2.0790	19 7 36.4	3.723	16	7 2 59.09	2.1713	20 19 57.0	0.829
17	5 22 54.53	2.0811	19 11 17.2	3.636	17	7 5 9.41	2.1728	20 19 4.2	0.931
18	5 24 59.46	2.0833	19 14 52.7	3.548	18	7 7 19.82	2.1743	20 18 5.3	1.033
19	5 27 4.53	2.0856	19 18 23.0	3.462	19	7 9 30.32	2.1757	20 17 0.3	1.134
20	5 29 9.73	2.0878	19 21 48.1	3.374	20	7 11 40.90	2.1770	20 15 49.2	1.236
21	5 31 15.07	2.0900	19 25 7.9	3.286	21	7 13 51.56	2.1783	20 14 32.0	1.338
22	5 33 20.53	2.0921	19 28 22.4	3.197	22	7 16 2.29	2.1796	20 13 8.6	1.441
23	5 35 26.12	2.0943	19 31 31.5	3.108	23	7 18 13.11	2.1809	20 11 39.1	1.543
24	5 37 31.85	2.0965	N.19 34 35.3	3.018	24	7 20 24.00	2.1822	N.20 10 3.4	1.646

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 13.					SATURDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	7 20 24.00	2.1822	N.20 10 3.4	1.646	0	9 6 3.45	2.2103	N.16 52 58.2	6.521
1	7 22 34.97	2.1833	20 8 21.6	1.748	1	9 8 16.07	2.2103	16 46 24.1	6.617
2	7 24 46.00	2.1845	20 6 33.6	1.851	2	9 10 28.69	2.2103	16 39 44.2	6.713
3	7 26 57.11	2.1857	20 4 39.5	1.953	3	9 12 41.30	2.2103	16 32 58.5	6.809
4	7 29 8.29	2.1868	20 2 39.2	2.057	4	9 14 53.92	2.2103	16 26 7.1	6.904
5	7 31 19.53	2.1879	20 0 32.7	2.159	5	9 17 6.53	2.2102	16 19 10.0	6.999
6	7 33 30.84	2.1891	19 58 20.1	2.262	6	9 19 19.14	2.2102	16 12 7.2	7.093
7	7 35 42.22	2.1902	19 56 1.3	2.365	7	9 21 31.75	2.2101	16 4 58.8	7.187
8	7 37 53.66	2.1911	19 53 36.3	2.468	8	9 23 44.35	2.2099	15 57 44.8	7.281
9	7 40 5.15	2.1921	19 51 5.1	2.572	9	9 25 56.94	2.2098	15 50 25.1	7.374
10	7 42 16.71	2.1932	19 48 27.7	2.675	10	9 28 9.53	2.2098	15 42 59.9	7.466
11	7 44 28.33	2.1941	19 45 44.1	2.778	11	9 30 22.11	2.2097	15 35 29.2	7.558
12	7 46 40.00	2.1950	19 42 54.4	2.881	12	9 32 34.69	2.2095	15 27 52.9	7.650
13	7 48 51.73	2.1958	19 39 58.4	2.984	13	9 34 47.25	2.2093	15 20 11.2	7.741
14	7 51 3.50	2.1967	19 36 56.3	3.088	14	9 36 59.81	2.2092	15 12 24.0	7.833
15	7 53 15.33	2.1976	19 33 47.9	3.191	15	9 39 12.35	2.2090	15 4 31.3	7.923
16	7 55 27.21	2.1983	19 30 33.4	3.294	16	9 41 24.89	2.2088	14 56 33.3	8.011
17	7 57 39.13	2.1991	19 27 12.6	3.398	17	9 43 37.41	2.2086	14 48 30.0	8.100
18	7 59 51.10	2.1998	19 23 45.7	3.500	18	9 45 49.92	2.2084	14 40 21.3	8.188
19	8 2 3.11	2.2006	19 20 12.6	3.603	19	9 48 2.42	2.2083	14 32 7.4	8.276
20	8 4 15.17	2.2013	19 16 33.3	3.707	20	9 50 14.91	2.2081	14 23 48.2	8.363
21	8 6 27.26	2.2018	19 12 47.8	3.809	21	9 52 27.39	2.2078	14 15 23.8	8.450
22	8 8 39.39	2.2025	19 8 56.2	3.912	22	9 54 39.85	2.2076	14 6 54.2	8.536
23	8 10 51.56	2.2032	N.19 4 58.4	4.015	23	9 56 52.30	2.2074	N.13 58 19.5	8.621
	FRIDAY 14.					SUNDAY 16.			
0	8 13 3.77	2.2038	N.19 0 54.4	4.118	0	9 59 4.74	2.2072	N.13 49 39.7	8.705
1	8 15 16.01	2.2043	18 56 44.3	4.219	1	10 1 17.16	2.2069	13 40 54.9	8.789
2	8 17 28.29	2.2048	18 52 28.1	4.322	2	10 3 29.57	2.2068	13 32 5.0	8.873
3	8 19 40.59	2.2053	18 48 5.7	4.424	3	10 5 41.97	2.2065	13 23 10.2	8.955
4	8 21 52.92	2.2058	18 43 37.2	4.527	4	10 7 54.35	2.2063	13 14 10.4	9.037
5	8 24 5.28	2.2063	18 39 2.5	4.628	5	10 10 6.72	2.2060	13 5 5.7	9.118
6	8 26 17.67	2.2007	18 34 21.8	4.729	6	10 12 19.07	2.2058	12 55 56.2	9.198
7	8 28 30.08	2.2070	18 29 35.0	4.832	7	10 14 31.41	2.2055	12 46 41.9	9.278
8	8 30 42.51	2.2074	18 24 42.0	4.933	8	10 16 43.73	2.2053	12 37 22.8	9.358
9	8 32 54.97	2.2078	18 19 43.0	5.034	9	10 18 56.05	2.2051	12 27 59.0	9.435
10	8 35 7.45	2.2081	18 14 37.9	5.135	10	10 21 8.35	2.2049	12 18 30.6	9.513
11	8 37 19.94	2.2083	18 9 26.8	5.236	11	10 23 20.63	2.2047	12 8 57.5	9.589
12	8 39 32.45	2.2087	18 4 9.6	5.337	12	10 25 32.91	2.2045	11 59 19.8	9.666
13	8 41 44.98	2.2089	17 58 46.4	5.437	13	10 27 45.17	2.2043	11 49 37.6	9.741
14	8 43 57.52	2.2091	17 53 17.2	5.537	14	10 29 57.42	2.2041	11 39 50.9	9.815
15	8 46 10.07	2.2093	17 47 42.0	5.637	15	10 32 9.66	2.2038	11 29 59.8	9.888
16	8 48 22.64	2.2096	17 42 0.8	5.737	16	10 34 21.88	2.2037	11 20 4.3	9.961
17	8 50 35.22	2.2097	17 36 13.6	5.836	17	10 36 34.10	2.2035	11 10 4.5	10.033
18	8 52 47.80	2.2098	17 30 20.5	5.934	18	10 38 46.30	2.2033	11 0 0.3	10.104
19	8 55 0.40	2.2100	17 24 21.5	6.033	19	10 40 58.50	2.2032	10 49 52.0	10.174
20	8 57 13.00	2.2101	17 18 16.6	6.131	20	10 43 10.68	2.2030	10 39 39.4	10.244
21	8 59 25.61	2.2102	17 12 5.8	6.229	21	10 45 22.86	2.2029	10 29 22.7	10.313
22	9 1 38.22	2.2102	17 5 49.1	6.327	22	10 47 35.03	2.2028	10 19 1.9	10.380
23	9 3 50.83	2.2103	16 59 26.6	6.424	23	10 49 47.19	2.2026	10 8 37.1	10.447
24	9 6 3.45	2.2103	N.16 52 58.2	6.521	24	10 51 59.34	2.2025	N. 9 58 8.3	10.513

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 17.					WEDNESDAY 19.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	10 51 59.34	2.2025	N. 9 58 8.3	10.513	0	12 37 58.43	2.2234	N. 0 37 17.3	12.421
1	10 54 11.49	2.2025	9 47 35.6	10.578	1	12 40 11.87	2.2246	0 24 51.7	12.431
2	10 56 23.64	2.2024	9 36 59.0	10.641	2	12 42 25.38	2.2258	N. 0 12 25.6	12.440
3	10 58 35.78	2.2023	9 26 18.7	10.704	3	12 44 38.96	2.2269	S. 0 0 1.1	12.448
4	11 0 47.91	2.2023	9 15 34.5	10.767	4	12 46 52.61	2.2282	0 12 28.2	12.455
5	11 3 0.05	2.2023	9 4 46.7	10.827	5	12 49 6.34	2.2295	0 24 55.7	12.460
6	11 5 12.18	2.2023	8 53 55.3	10.888	6	12 51 20.15	2.2308	0 37 23.4	12.463
7	11 7 24.32	2.2023	8 43 0.2	10.947	7	12 53 34.04	2.2322	0 49 51.3	12.466
8	11 9 36.46	2.2023	8 32 1.6	11.005	8	12 55 48.01	2.2335	1 2 19.3	12.468
9	11 11 48.60	2.2023	8 20 59.6	11.062	9	12 58 2.06	2.2349	1 14 47.4	12.468
10	11 14 0.74	2.2023	8 9 54.2	11.118	10	13 0 16.20	2.2364	1 27 15.5	12.467
11	11 16 12.88	2.2024	7 58 45.4	11.173	11	13 2 30.43	2.2378	1 39 43.4	12.463
12	11 18 25.03	2.2026	7 47 33.4	11.228	12	13 4 44.74	2.2393	1 52 11.1	12.459
13	11 20 37.19	2.2027	7 36 18.1	11.281	13	13 6 59.15	2.2409	2 4 38.5	12.454
14	11 22 49.35	2.2028	7 24 59.7	11.333	14	13 9 13.65	2.2425	2 17 5.6	12.448
15	11 25 1.53	2.2030	7 13 38.2	11.383	15	13 11 28.25	2.2442	2 29 32.2	12.439
16	11 27 13.71	2.2032	7 2 13.7	11.433	16	13 13 42.95	2.2458	2 41 58.3	12.430
17	11 29 25.91	2.2034	6 50 46.2	11.482	17	13 15 57.75	2.2475	2 54 23.8	12.419
18	11 31 38.12	2.2037	6 39 15.9	11.529	18	13 18 12.65	2.2493	3 6 48.6	12.407
19	11 33 50.35	2.2039	6 27 42.7	11.577	19	13 20 27.66	2.2510	3 19 12.6	12.393
20	11 36 2.59	2.2042	6 16 6.7	11.623	20	13 22 42.77	2.2528	3 31 35.8	12.378
21	11 38 14.85	2.2044	6 4 28.0	11.667	21	13 24 57.99	2.2545	3 43 58.0	12.362
22	11 40 27.12	2.2048	5 52 46.7	11.710	22	13 27 13.31	2.2563	3 56 19.2	12.343
23	11 42 39.42	2.2052	N. 5 41 2.8	11.752	23	13 29 28.75	2.2583	S. 4 8 39.2	12.324
	TUESDAY 18.					THURSDAY 20.			
0	11 44 51.74	2.2055	N. 5 29 16.4	11.793	0	13 31 44.31	2.2603	S. 4 20 58.1	12.304
1	11 47 4.08	2.2059	5 17 27.6	11.833	1	13 33 59.98	2.2622	4 33 15.7	12.283
2	11 49 16.45	2.2063	5 5 36.4	11.873	2	13 36 15.77	2.2642	4 45 32.0	12.260
3	11 51 28.84	2.2068	4 53 42.9	11.910	3	13 38 31.68	2.2662	4 57 46.9	12.235
4	11 53 41.27	2.2073	4 41 47.2	11.946	4	13 40 47.71	2.2683	5 10 0.2	12.208
5	11 55 53.72	2.2078	4 29 49.4	11.981	5	13 43 3.87	2.2703	5 22 11.9	12.182
6	11 58 6.20	2.2083	4 17 49.5	12.015	6	13 45 20.15	2.2723	5 34 22.0	12.153
7	12 0 18.72	2.2089	4 5 47.6	12.048	7	13 47 36.55	2.2745	5 46 30.3	12.123
8	12 2 31.27	2.2095	3 53 43.7	12.081	8	13 49 53.09	2.2767	5 58 36.7	12.091
9	12 4 43.86	2.2102	3 41 37.9	12.111	9	13 52 9.75	2.2788	6 10 41.2	12.058
10	12 6 56.49	2.2108	3 29 30.4	12.140	10	13 54 26.55	2.2811	6 22 43.6	12.023
11	12 9 9.16	2.2115	3 17 21.1	12.168	11	13 56 43.48	2.2833	6 34 44.0	11.988
12	12 11 21.87	2.2123	3 5 10.2	12.195	12	13 59 0.55	2.2856	6 46 42.2	11.951
13	12 13 34.63	2.2130	2 52 57.7	12.221	13	14 1 17.75	2.2878	6 58 38.1	11.913
14	12 15 47.43	2.2138	2 40 43.7	12.246	14	14 3 35.09	2.2903	7 10 31.7	11.873
15	12 18 0.29	2.2147	2 28 28.2	12.269	15	14 5 52.58	2.2926	7 22 22.9	11.832
16	12 20 13.19	2.2154	2 16 11.4	12.291	16	14 8 10.20	2.2949	7 34 11.6	11.789
17	12 22 26.14	2.2163	2 3 53.3	12.312	17	14 10 27.97	2.2973	7 45 57.6	11.745
18	12 24 39.15	2.2173	1 51 34.0	12.331	18	14 12 45.88	2.2998	7 57 41.0	11.701
19	12 26 52.21	2.2183	1 39 13.6	12.348	19	14 15 3.94	2.3023	8 9 21.7	11.654
20	12 29 5 34	2.2193	1 26 52.2	12.366	20	14 17 22.15	2.3047	8 20 59.5	11.606
21	12 31 18.52	2.2202	1 14 29.7	12.382	21	14 19 40.50	2.3072	8 32 34.4	11.557
22	12 33 31.76	2.2212	1 2 6.4	12.396	22	14 21 59.01	2.3098	8 44 6.3	11.506
23	12 35 45.06	2.2223	0 49 42.2	12.409	23	14 24 17.67	2.3123	8 55 35.1	11.453
24	12 37 58.43	2.2234	N. 0 37 17.3	12.421	24	14 26 36.49	2.3149	S. 9 7 0.7	11.400

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 21.					SUNDAY 23.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	14 26 36.49	2.3149	S. 9 7 0.7	11.400	0	16 20 50.29	2.4429	S. 16 48 22.3	7.368
1	14 28 55.46	2.3174	9 18 23.1	11.346	1	16 23 16.94	2.4452	16 55 41.0	7.256
2	14 31 14.58	2.3200	9 29 42.2	11.290	2	16 25 43.72	2.4474	17 2 53.0	7.144
3	14 33 33.86	2.3227	9 40 57.9	11.232	3	16 28 10.63	2.4497	17 9 58.3	7.032
4	14 35 53.30	2.3253	9 52 10.1	11.173	4	16 30 37.68	2.4519	17 16 56.8	6.918
5	14 38 12.90	2.3279	10 3 18.7	11.113	5	16 33 4.86	2.4541	17 23 48.5	6.803
6	14 40 32.65	2.3306	10 14 23.6	11.052	6	16 35 32.17	2.4562	17 30 33.2	6.688
7	14 42 52.57	2.3333	10 25 24.9	10.990	7	16 37 59.60	2.4582	17 37 11.0	6.573
8	14 45 12.65	2.3360	10 36 22.4	10.925	8	16 40 27.15	2.4603	17 43 41.9	6.456
9	14 47 32.89	2.3387	10 47 15.9	10.859	9	16 42 54.83	2.4623	17 50 5.7	6.338
10	14 49 53.29	2.3414	10 58 5.5	10.793	10	16 45 22.62	2.4642	17 56 22.4	6.219
11	14 52 13.86	2.3442	11 8 51.1	10.726	11	16 47 50.53	2.4661	18 2 32.0	6.100
12	14 54 34.59	2.3469	11 19 32.6	10.657	12	16 50 18.55	2.4679	18 8 34.4	5.980
13	14 56 55.49	2.3497	11 30 9.9	10.586	13	16 52 46.68	2.4697	18 14 29.6	5.860
14	14 59 16.55	2.3524	11 40 42.9	10.513	14	16 55 14.91	2.4714	18 20 17.6	5.738
15	15 1 37.78	2.3552	11 51 11.5	10.440	15	16 57 43.25	2.4731	18 25 58.2	5.616
16	15 3 59.17	2.3579	12 1 35.7	10.366	16	17 0 11.68	2.4748	18 31 31.5	5.494
17	15 6 20.73	2.3608	12 11 55.4	10.291	17	17 2 40.22	2.4763	18 36 57.5	5.371
18	15 8 42.46	2.3635	12 22 10.6	10.214	18	17 5 8.84	2.4778	18 42 16.0	5.246
19	15 11 4.35	2.3663	12 32 21.1	10.135	19	17 7 37.55	2.4793	18 47 27.0	5.122
20	15 13 26.41	2.3691	12 42 26.8	10.056	20	17 10 6.35	2.4808	18 52 30.6	4.998
21	15 15 48.64	2.3719	12 52 27.8	9.976	21	17 12 35.24	2.4821	18 57 26.7	4.872
22	15 18 11.04	2.3747	13 2 23.9	9.893	22	17 15 4.20	2.4833	19 2 15.2	4.745
23	15 20 33.60	2.3774	S. 13 12 15.0	9.810	23	17 17 33.23	2.4845	S. 19 6 56.1	4.618
	SATURDAY 22.					MONDAY 24.			
0	15 22 56.33	2.3803	S. 13 22 1.1	9.726	0	17 20 2.34	2.4857	S. 19 11 29.3	4.490
1	15 25 19.23	2.3830	13 31 42.1	9.640	1	17 22 31.52	2.4868	19 15 54.9	4.363
2	15 27 42.29	2.3858	13 41 17.9	9.553	2	17 25 0.76	2.4878	19 20 12.9	4.235
3	15 30 5.52	2.3886	13 50 48.5	9.466	3	17 27 30.06	2.4888	19 24 23.1	4.106
4	15 32 28.92	2.3913	14 0 13.8	9.377	4	17 29 59.41	2.4897	19 28 25.6	3.978
5	15 34 52.48	2.3940	14 9 33.7	9.287	5	17 32 28.82	2.4906	19 32 20.4	3.848
6	15 37 16.20	2.3968	14 18 48.2	9.195	6	17 34 58.28	2.4913	19 36 7.3	3.718
7	15 39 40.09	2.3995	14 27 57.1	9.103	7	17 37 27.78	2.4920	19 39 46.5	3.588
8	15 42 4.14	2.4023	14 37 0.5	9.009	8	17 39 57.32	2.4927	19 43 17.8	3.456
9	15 44 28.36	2.4049	14 45 58.2	8.914	9	17 42 26.90	2.4933	19 46 41.2	3.325
10	15 46 52.73	2.4076	14 54 50.2	8.819	10	17 44 56.51	2.4938	19 49 56.8	3.194
11	15 49 17.27	2.4103	15 3 36.5	8.722	11	17 47 26.15	2.4942	19 53 4.5	3.063
12	15 51 41.96	2.4129	15 12 16.8	8.623	12	17 49 55.81	2.4945	19 56 4.3	2.931
13	15 54 6.82	2.4156	15 20 51.3	8.525	13	17 52 25.49	2.4948	19 58 56.2	2.799
14	15 56 31.83	2.4182	15 29 19.8	8.424	14	17 54 55.18	2.4950	20 1 40.2	2.667
15	15 58 57.00	2.4208	15 37 42.2	8.323	15	17 57 24.89	2.4952	20 4 16.2	2.534
16	16 1 22.32	2.4233	15 45 58.5	8.221	16	17 59 54.60	2.4952	20 6 44.3	2.402
17	16 3 47.80	2.4259	15 54 8.7	8.118	17	18 2 24.31	2.4952	20 9 4.4	2.268
18	16 6 13.43	2.4284	16 2 12.7	8.014	18	18 4 54.02	2.4951	20 11 16.5	2.136
19	16 8 39.21	2.4308	16 10 10.4	7.908	19	18 7 23.72	2.4949	20 13 20.7	2.003
20	16 11 5.13	2.4333	16 18 1.7	7.802	20	18 9 53.41	2.4947	20 15 16.9	1.869
21	16 13 31.21	2.4358	16 25 46.6	7.694	21	18 12 23.08	2.4943	20 17 5.0	1.736
22	16 15 57.43	2.4382	16 33 25.0	7.586	22	18 14 52.73	2.4940	20 18 45.2	1.603
23	16 18 23.79	2.4405	16 40 56.9	7.478	23	18 17 22.36	2.4936	20 20 17.4	1.469
24	16 20 50.29	2.4429	S. 16 48 22.3	7.368	24	18 19 51.96	2.4930	S. 20 21 41.5	1.336

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 25.					THURSDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	18 19 51.96	2.4930	S. 20 21 41.5	1.336	0	20 17 32.39	2.3853	S. 18 56 34.4	4.706
1	18 22 21.52	2.4924	20 22 57.7	1.203	1	20 19 55.40	2.3817	18 51 48.7	4.818
2	18 24 51.05	2.4917	20 24 5.8	1.069	2	20 22 18.19	2.3779	18 46 56.3	4.928
3	18 27 20.53	2.4909	20 25 6.0	0.936	3	20 24 40.75	2.3742	18 41 57.3	5.038
4	18 29 49.96	2.4901	20 25 58.1	0.803	4	20 27 3.09	2.3705	18 36 51.8	5.147
5	18 32 19.34	2.4893	20 26 42.3	0.669	5	20 29 25.21	2.3667	18 31 39.7	5.255
6	18 34 48.67	2.4883	20 27 18.4	0.536	6	20 31 47.10	2.3628	18 26 21.2	5.362
7	18 37 17.93	2.4871	20 27 46.6	0.403	7	20 34 8.75	2.3590	18 20 56.3	5.468
8	18 39 47.12	2.4860	20 28 6.8	0.271	8	20 36 30.18	2.3552	18 15 25.0	5.574
9	18 42 16.25	2.4848	20 28 19.1	0.138	9	20 38 51.37	2.3512	18 9 47.4	5.678
10	18 44 45.29	2.4834	20 28 23.4	0.005	10	20 41 12.32	2.3473	18 4 3.6	5.782
11	18 47 14.26	2.4822	20 28 19.7	0.128	11	20 43 33.04	2.3433	17 58 13.6	5.884
12	18 49 43.15	2.4808	20 28 8.1	0.259	12	20 45 53.51	2.3393	17 52 17.5	5.986
13	18 52 11.95	2.4792	20 27 48.6	0.390	13	20 48 13.75	2.3353	17 46 15.3	6.087
14	18 54 40.65	2.4776	20 27 21.3	0.522	14	20 50 33.74	2.3313	17 40 7.1	6.187
15	18 57 9.26	2.4760	20 26 46.0	0.653	15	20 52 53.50	2.3273	17 33 52.9	6.287
16	18 59 37.77	2.4742	20 26 2.9	0.784	16	20 55 13.01	2.3231	17 27 32.7	6.384
17	19 2 6.16	2.4723	20 25 11.9	0.914	17	20 57 32.27	2.3189	17 21 6.8	6.481
18	19 4 34.45	2.4706	20 24 13.2	1.044	18	20 59 51.28	2.3148	17 14 35.0	6.577
19	19 7 2.63	2.4686	20 23 6.6	1.175	19	21 2 10.05	2.3107	17 7 57.5	6.673
20	19 9 30.68	2.4665	20 21 52.2	1.304	20	21 4 28.57	2.3065	17 1 14.3	6.767
21	19 11 58.61	2.4645	20 20 30.1	1.433	21	21 6 46.83	2.3023	16 54 25.5	6.859
22	19 14 26.42	2.4623	20 19 0.2	1.562	22	21 9 4.85	2.2982	16 47 31.2	6.952
23	19 16 54.09	2.4601	S. 20 17 22.7	1.690	23	21 11 22.62	2.2940	S. 16 40 31.3	7.043
	WEDNESDAY 26.					FRIDAY 28.			
0	19 19 21.63	2.4578	S. 20 15 37.4	1.818	0	21 13 40.13	2.2898	S. 16 33 26.0	7.133
1	19 21 49.03	2.4554	20 13 44.5	1.945	1	21 15 57.39	2.2856	16 26 15.3	7.223
2	19 24 16.28	2.4530	20 11 44.0	2.072	2	21 18 14.40	2.2814	16 18 59.3	7.310
3	19 26 43.39	2.4506	20 9 35.9	2.198	3	21 20 31.16	2.2772	16 11 38.1	7.398
4	19 29 10.35	2.4480	20 7 20.2	2.324	4	21 22 47.66	2.2729	16 4 11.6	7.484
5	19 31 37.15	2.4453	20 4 57.0	2.449	5	21 25 3.91	2.2687	15 56 40.0	7.568
6	19 34 3.79	2.4427	20 2 26.3	2.574	6	21 27 19.90	2.2644	15 49 3.4	7.653
7	19 36 30.27	2.4400	19 59 48.1	2.698	7	21 29 35.64	2.2603	15 41 21.7	7.736
8	19 38 56.59	2.4372	19 57 2.5	2.822	8	21 31 51.13	2.2560	15 33 35.1	7.818
9	19 41 22.74	2.4343	19 54 9.5	2.944	9	21 34 6.36	2.2517	15 25 43.5	7.899
10	19 43 48.71	2.4314	19 51 9.2	3.067	10	21 36 21.33	2.2474	15 17 47.2	7.978
11	19 46 14.51	2.4284	19 48 1.5	3.188	11	21 38 36.05	2.2433	15 9 46.1	8.058
12	19 48 40.12	2.4253	19 44 46.6	3.309	12	21 40 50.52	2.2390	15 1 40.2	8.137
13	19 51 5.55	2.4223	19 41 24.4	3.430	13	21 43 4.73	2.2348	14 53 29.7	8.213
14	19 53 30.80	2.4193	19 37 55.0	3.549	14	21 45 18.69	2.2306	14 45 14.7	8.288
15	19 55 55.86	2.4161	19 34 18.5	3.668	15	21 47 32.40	2.2263	14 36 55.1	8.363
16	19 58 20.73	2.4128	19 30 34.8	3.787	16	21 49 45.85	2.2222	14 28 31.1	8.438
17	20 0 45.40	2.4095	19 26 44.0	3.905	17	21 51 59.06	2.2180	14 20 2.6	8.511
18	20 3 9.87	2.4062	19 22 46.2	4.021	18	21 54 12.01	2.2138	14 11 29.8	8.582
19	20 5 34.14	2.4028	19 18 41.5	4.137	19	21 56 24.71	2.2095	14 2 52.8	8.652
20	20 7 58.21	2.3994	19 14 29.8	4.253	20	21 58 37.15	2.2053	13 54 11.6	8.722
21	20 10 22.07	2.3959	19 10 11.2	4.368	21	22 0 49.35	2.2013	13 45 26.2	8.791
22	20 12 45.72	2.3924	19 5 45.7	4.482	22	22 3 1.31	2.1972	13 36 36.7	8.858
23	20 15 9.16	2.3889	19 1 13.4	4.594	23	22 5 13.01	2.1929	13 27 43.2	8.924
24	20 17 32.39	2.3853	S. 18 56 34.4	4.706	24	22 7 24.46	2.1888	S. 13 18 45.8	8.989

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 29.			
	h m s	s	° ′ ″	″
0	22 7 24.46	2.1888	S. 13 18 45.8	8.989
1	22 9 35.67	2.1848	13 9 44.5	9.054
2	22 11 46.63	2.1807	13 0 39.3	9.118
3	22 13 57.35	2.1766	12 51 30.4	9.179
4	22 16 7.82	2.1725	12 42 17.8	9.240
5	22 18 18.05	2.1685	12 33 1.6	9.301
6	22 20 28.04	2.1645	12 23 41.7	9.360
7	22 22 37.79	2.1605	12 14 18.4	9.418
8	22 24 47.30	2.1566	12 4 51.6	9.475
9	22 26 56.58	2.1527	11 55 21.4	9.532
10	22 29 5.62	2.1487	11 45 47.8	9.587
11	22 31 14.42	2.1448	11 36 11.0	9.640
12	22 33 23.00	2.1410	11 26 31.0	9.693
13	22 35 31.34	2.1372	11 16 47.9	9.744
14	22 37 39.46	2.1333	11 7 1.7	9.795
15	22 39 47.34	2.1295	10 57 12.5	9.845
16	22 41 55.00	2.1258	10 47 20.3	9.894
17	22 44 2.43	2.1221	10 37 25.2	9.942
18	22 46 9.65	2.1184	10 27 27.3	9.988
19	22 48 16.64	2.1147	10 17 26.7	10.033
20	22 50 23.41	2.1110	10 7 23.3	10.078
21	22 52 29.96	2.1074	9 57 17.3	10.122
22	22 54 36.30	2.1039	9 47 8.7	10.164
23	22 56 42.43	2.1003	S. 9 36 57.6	10.206
	SUNDAY 30.			
0	22 58 48.34	2.0968	S. 9 26 44.0	10.246
1	23 0 54.04	2.0933	9 16 28.1	10.285
2	23 2 59.54	2.0899	9 6 9.8	10.324
3	23 5 4.83	2.0865	8 55 49.2	10.362
4	23 7 9.92	2.0831	8 45 26.4	10.398
5	23 9 14.80	2.0798	8 35 1.4	10.433
6	23 11 19.49	2.0764	8 24 34.4	10.468
7	23 13 23.97	2.0731	8 14 5.3	10.502
8	23 15 28.26	2.0699	8 3 34.2	10.534
9	23 17 32.36	2.0668	7 53 1.2	10.566
10	23 19 36.27	2.0635	7 42 26.3	10.596
11	23 21 39.98	2.0603	7 31 49.7	10.625
12	23 23 43.51	2.0573	7 21 11.3	10.654
13	23 25 46.85	2.0543	7 10 31.2	10.682
14	23 27 50.02	2.0513	6 59 49.5	10.709
15	23 29 53.00	2.0482	6 49 6.1	10.735
16	23 31 55.80	2.0453	6 38 21.3	10.759
17	23 33 58.43	2.0423	6 27 35.0	10.783
18	23 36 0.88	2.0395	6 16 47.4	10.806
19	23 38 3.17	2.0367	6 5 58.3	10.828
20	23 40 5.28	2.0338	5 55 8.0	10.849
21	23 42 7.23	2.0312	5 44 16.4	10.869
22	23 44 9.02	2.0284	5 33 23.7	10.888
23	23 46 10.64	2.0257	5 22 29.8	10.906
24	23 48 12.10	2.0231	S. 5 11 35.0	10.923

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY, OCTOBER 1.			
	h m s	s	° ′ ″	″
0	23 48 12.10	2.0231	S. 5 11 35.0	10.923

PHASES OF THE MOON.

			d	h	m
○	Full Moon	Sept.	2	11	36.4
☾	Last Quarter		10	8	53.6
●	New Moon		18	0	33.5
☽	First Quarter		24	18	11.5

			d	h
☾	Apogee	Sept.	9	12.9
☾	Perigee		21	12.3

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	III^{h}	P. L. of Diff.	VI^{h}	P. L. of Diff.	IX^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Antares	W.	71 6 23	2502	72 47 34	2509	74 28 35	2517	76 9 25	2526
	α Arietis	E.	77 7 45	2603	75 28 53	2614	73 50 17	2626	72 11 57	2639
	Aldebaran	E.	108 45 28	2439	107 2 49	2448	105 20 23	2457	103 38 9	2467
2	Antares	W.	84 30 28	2573	86 10 0	2583	87 49 18	2594	89 28 21	2605
	α Aquilæ	W.	44 8 51	3812	45 23 41	3751	46 39 36	3693	47 56 30	3646
	α Arietis	E.	64 4 48	2710	62 28 22	2728	60 52 19	2745	59 16 39	2763
	Aldebaran	E.	95 10 26	2517	93 29 36	2527	91 49 0	2538	90 8 39	2549
3	Antares	W.	97 39 46	2664	99 17 14	2676	100 54 26	2689	102 31 21	2702
	α Aquilæ	W.	54 32 10	3479	55 52 58	3457	57 14 11	3438	58 35 44	3423
	α Arietis	E.	51 24 42	2870	49 51 44	2895	48 19 19	2922	46 47 28	2950
	Aldebaran	E.	81 50 52	2607	80 12 7	2619	78 33 38	2631	76 55 25	2643
	JUPITER	E.	109 51 48	2663	108 14 19	2675	106 37 6	2687	105 0 9	2699
4	α Aquilæ	W.	65 27 0	3379	66 49 40	3375	68 12 25	3372	69 35 13	3372
	SATURN	W.	17 48 25	2681	19 25 30	2693	21 2 19	2705	22 38 52	2718
	Aldebaran	E.	68 48 29	2705	67 11 56	2718	65 35 40	2731	63 59 41	2743
	JUPITER	E.	96 59 28	2762	95 24 10	2774	93 49 8	2786	92 14 22	2799
	Pollux	E.	112 45 52	2759	111 10 30	2771	109 35 24	2782	108 0 33	2794
5	α Aquilæ	W.	76 28 55	3386	77 51 28	3392	79 13 54	3397	80 36 14	3403
	Fomalhaut	W.	41 52 39	3388	43 15 9	3367	44 38 3	3350	46 1 17	3335
	SATURN	W.	30 37 30	2779	32 12 25	2791	33 47 5	2803	35 21 30	2815
	Aldebaran	E.	56 3 52	2805	54 29 31	2817	52 55 26	2829	51 21 36	2841
	JUPITER	E.	84 24 40	2862	82 51 32	2874	81 18 39	2886	79 46 2	2898
	Pollux	E.	100 10 5	2852	98 36 45	2864	97 3 41	2876	95 30 51	2887
6	α Aquilæ	W.	87 25 44	3447	88 47 7	3457	90 8 19	3468	91 29 19	3480
	Fomalhaut	W.	53 0 54	3292	54 25 15	3288	55 49 41	3284	57 14 11	3282
	SATURN	W.	43 9 45	2871	44 42 41	2882	46 15 23	2892	47 47 52	2902
	α Pegasi	W.	40 13 0	3833	41 27 28	3789	42 42 42	3749	43 58 37	3714
	Aldebaran	E.	43 36 13	2898	42 3 53	2909	40 31 46	2920	38 59 52	2931
	JUPITER	E.	72 6 41	2955	70 35 32	2966	69 4 37	2977	67 33 55	2987
	Pollux	E.	87 50 22	2944	86 19 0	2955	84 47 51	2966	83 16 55	2977
7	α Aquilæ	W.	98 11 3	3541	99 30 42	3555	100 50 6	3569	102 9 15	3583
	Fomalhaut	W.	64 17 0	3282	65 41 32	3283	67 6 3	3285	68 30 33	3287
	SATURN	W.	55 27 7	2950	56 58 23	2958	58 29 28	2966	60 0 23	2974
	α Pegasi	W.	50 26 7	3594	51 44 48	3576	53 3 48	3562	54 23 4	3549
	Aldebaran	E.	31 23 36	2978	29 52 56	2987	28 22 28	2996	26 52 10	3003
	JUPITER	E.	60 3 37	3035	58 34 9	3044	57 4 51	3052	55 35 43	3060
	Pollux	E.	75 45 32	3026	74 15 52	3035	72 46 23	3044	71 17 6	3053
	SUN	E.	126 48 39	3346	125 25 21	3356	124 2 14	3364	122 39 17	3372
8	α Aquilæ	W.	108 40 53	3663	109 58 20	3680	111 15 29	3698	112 32 18	3717
	Fomalhaut	W.	75 32 23	3298	76 56 37	3300	78 20 48	3302	79 44 57	3304
	SATURN	W.	67 32 42	3007	69 2 46	3013	70 32 43	3018	72 2 33	3022
	α Pegasi	W.	61 2 34	3501	62 22 57	3494	63 43 28	3487	65 4 7	3481
	JUPITER	E.	48 12 25	3096	46 44 10	3102	45 16 3	3107	43 48 2	3112
	Pollux	E.	63 53 14	3093	62 24 56	3100	60 56 47	3107	59 28 46	3114
	SUN	E.	115 46 44	3409	114 24 38	3415	113 2 38	3420	111 40 45	3425

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV$^{\text{h}}$	P. L. of Diff.	XVIII$^{\text{h}}$	P. L. of Diff.	XXI$^{\text{h}}$	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Antares	W.	77 50 3	2535	79 30 29	2544	81 10 42	2553	82 50 42	2563
	α Arietis	E.	70 33 54	2652	68 56 9	2666	67 18 42	2680	65 41 35	2695
	Aldebaran	E.	101 56 9	2477	100 14 23	2486	98 32 50	2496	96 51 31	2506
2	Antares	W.	91 7 10	2616	92 45 43	2628	94 24 0	2640	96 2 1	2652
	α Aquilæ	W.	49 14 15	3602	50 32 47	3565	51 52 0	3532	53 11 49	3504
	α Arietis	E.	57 41 22	2782	56 6 30	2803	54 32 6	2825	52 58 10	2847
	Aldebaran	E.	88 28 34	2561	86 48 45	2572	85 9 12	2583	83 29 54	2595
3	Antares	W.	104 7 58	2715	105 44 18	2729	107 20 20	2742	108 56 4	2756
	α Aquilæ	W.	59 57 35	3410	61 19 40	3400	62 41 57	3391	64 4 24	3384
	α Arietis	E.	45 16 12	2980	43 45 34	3013	42 15 37	3047	40 46 22	3083
	Aldebaran	E.	75 17 28	2655	73 39 48	2668	72 2 25	2680	70 25 19	2692
	JUPITER	E.	103 23 28	2711	101 47 3	2724	100 10 55	2736	98 35 3	2749
4	α Aquilæ	W.	70 58 1	3373	72 20 48	3375	73 43 33	3377	75 6 16	3381
	SATURN	W.	24 15 8	2730	25 51 8	2743	27 26 51	2755	29 2 18	2767
	Aldebaran	E.	62 23 58	2756	60 48 32	2768	59 13 23	2780	57 38 29	2793
	JUPITER	E.	90 39 53	2812	89 5 41	2825	87 31 45	2837	85 58 5	2849
	Pollux	E.	106 25 57	2805	104 51 36	2817	103 17 31	2828	101 43 40	2840
5	α Aquilæ	W.	81 58 27	3411	83 20 31	3420	84 42 25	3429	86 4 10	3438
	Fomalhaut	W.	47 24 48	3322	48 48 34	3312	50 12 32	3304	51 36 39	3297
	SATURN	W.	36 55 39	2826	38 29 33	2838	40 3 11	2849	41 36 35	2860
	Aldebaran	E.	49 48 1	2853	48 14 42	2865	46 41 38	2876	45 8 48	2887
	JUPITER	E.	78 13 40	2910	76 41 34	2921	75 9 42	2932	73 38 4	2944
	Pollux	E.	93 58 16	2899	92 25 56	2910	90 53 50	2922	89 21 59	2933
6	α Aquilæ	W.	92 50 6	3491	94 10 41	3503	95 31 2	3515	96 51 10	3528
	Fomalhaut	W.	58 38 44	3282	60 3 17	3281	61 27 51	3280	62 52 26	3281
	SATURN	W.	49 20 7	2912	50 52 10	2922	52 24 1	2931	53 55 40	2941
	α Pegasi	W.	45 15 9	3683	46 32 14	3657	47 49 47	3633	49 7 46	3612
	Aldebaran	E.	37 28 12	2941	35 56 45	2950	34 25 30	2960	32 54 27	2969
	JUPITER	E.	66 3 27	2997	64 33 11	3008	63 3 8	3017	61 33 17	3026
	Pollux	E.	81 46 13	2987	80 15 44	2997	78 45 28	3007	77 15 24	3017
7	α Aquilæ	W.	103 28 8	3598	104 46 45	3613	106 5 5	3629	107 23 8	3646
	Fomalhaut	W.	69 55 0	3289	71 19 24	3291	72 43 46	3293	74 8 6	3295
	SATURN	W.	61 31 8	2981	63 1 44	2988	64 32 11	2995	66 2 30	3001
	α Pegasi	W.	55 42 35	3537	57 2 18	3526	58 22 13	3516	59 42 19	3508
	Aldebaran	E.	25 22 1	3011	23 52 2	3019	22 22 13	3026	20 52 32	3033
	JUPITER	E.	54 6 45	3068	52 37 57	3076	51 9 18	3083	49 40 47	3090
	Pollux	E.	69 47 59	3062	68 19 3	3070	66 50 17	3078	65 21 41	3086
	SUN	E.	121 16 29	3380	119 53 50	3388	118 31 20	3395	117 8 58	3402
8	α Aquilæ	W.	113 48 47	3738	115 4 54	3758	116 20 40	3779	117 36 4	3800
	Fomalhaut	W.	81 9 4	3306	82 33 8	3309	83 57 9	3311	85 21 8	3313
	SATURN	W.	73 32 18	3026	75 1 57	3030	76 31 32	3033	78 1 3	3036
	α Pegasi	W.	66 24 52	3476	67 45 43	3471	69 6 39	3466	70 27 41	3461
	JUPITER	E.	42 20 7	3117	40 52 18	3121	39 24 35	3125	37 56 56	3129
	Pollux	E.	58 0 53	3120	56 33 8	3126	55 5 30	3132	53 37 59	3137
	SUN	E.	110 18 57	3430	108 57 14	3434	107 35 36	3437	106 14 2	3440

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	III$^{\text{h}}$	P. L. of Diff.	VI$^{\text{h}}$	P. L. of Diff.	IX$^{\text{h}}$	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Fomalhaut	W.	86 45 5	3314	88 9 0	3316	89 32 53	3317	90 56 45	3319
	Saturn	W.	79 30 31	3039	80 59 56	3041	82 29 18	3042	83 58 39	3043
	α Pegasi	W.	71 48 49	3457	73 10 1	3453	74 31 17	3449	75 52 38	3445
	α Arietis	W.	28 38 51	3795	29 53 58	3736	31 10 7	3682	32 27 13	3635
	Jupiter	E.	36 29 21	3132	35 1 50	3135	33 34 23	3137	32 6 59	3139
	Pollux	E.	52 10 34	3143	50 43 16	3148	49 16 5	3153	47 49 0	3158
	Sun	E.	104 52 31	3443	103 31 4	3446	102 9 39	3447	100 48 16	3448
10	Fomalhaut	W.	97 55 47	3321	99 19 34	3323	100 43 19	3322	102 7 5	3321
	Saturn	W.	91 25 15	3041	92 54 37	3039	94 24 2	3037	95 53 29	3034
	α Pegasi	W.	82 40 30	3426	84 2 17	3423	85 24 8	3418	86 46 4	3414
	α Arietis	W.	39 3 45	3465	40 24 48	3439	41 46 20	3416	43 8 18	3394
	Pollux	E.	40 35 2	3183	39 8 33	3189	37 42 10	3195	36 15 55	3202
	Sun	E.	94 1 27	3446	92 40 2	3444	91 18 35	3441	89 57 5	3438
11	Saturn	W.	103 21 52	3012	104 51 50	3006	106 21 55	3000	107 52 8	2993
	α Pegasi	W.	93 36 52	3394	94 59 16	3390	96 21 44	3385	97 44 18	3381
	α Arietis	W.	50 3 56	3301	51 28 6	3285	52 52 35	3269	54 17 23	3253
	Aldebaran	W.	16 15 1	3045	17 44 18	3038	19 13 44	3031	20 43 18	3024
	Sun	E.	83 8 33	3415	81 46 34	3409	80 24 28	3402	79 2 14	3395
12	α Arietis	W.	61 25 54	3178	62 52 29	3163	64 19 22	3148	65 46 33	3134
	Aldebaran	W.	28 13 33	2982	29 44 8	2972	31 14 55	2962	32 45 55	2952
	Sun	E.	72 8 51	3352	70 45 40	3342	69 22 17	3332	67 58 42	3321
13	α Arietis	W.	73 6 51	3061	74 35 48	3046	76 5 3	3031	77 34 37	3016
	Aldebaran	W.	40 24 18	2895	41 56 43	2883	43 29 23	2870	45 2 20	2858
	Sun	E.	60 57 33	3261	59 32 37	3248	58 7 25	3235	56 41 58	3222
14	α Arietis	W.	85 7 4	2942	86 38 30	2927	88 10 14	2912	89 42 17	2898
	Aldebaran	W.	52 51 20	2789	54 26 2	2775	56 1 3	2760	57 36 23	2745
	Sun	E.	49 30 36	3151	48 3 28	3136	46 36 2	3121	45 8 18	3106
15	α Arietis	W.	97 27 9	2826	99 1 3	2812	100 35 15	2799	102 9 44	2786
	Aldebaran	W.	65 37 58	2671	67 15 17	2655	68 52 57	2640	70 30 58	2625
	Sun	E.	37 45 6	3032	36 15 33	3017	34 45 41	3002	33 15 31	2989
20	Sun	W.	26 38 50	2565	28 18 33	2557	29 58 27	2551	31 38 30	2545
	α Aquilæ	E.	94 13 29	2772	92 38 25	2768	91 3 15	2765	89 28 0	2763
21	Sun	W.	40 0 24	2528	41 40 59	2527	43 21 35	2525	45 2 13	2524
	α Aquilæ	E.	81 31 38	2771	79 56 32	2778	78 21 35	2785	76 46 47	2794
	Fomalhaut	E.	115 21 14	2505	113 40 8	2496	111 58 49	2489	110 17 20	2483
22	Sun	W.	53 25 20	2530	55 5 51	2533	56 46 19	2535	58 26 44	2538
	α Aquilæ	E.	68 56 36	2866	67 23 34	2887	65 50 58	2909	64 18 51	2934
	Fomalhaut	E.	101 48 17	2468	100 6 19	2467	98 24 20	2468	96 42 22	2469
	Saturn	E.	108 37 52	2190	106 49 9	2193	105 0 30	2196	103 11 56	2199
	α Pegasi	E.	116 28 46	2652	114 51 2	2643	113 13 6	2635	111 34 59	2628
23	Sun	W.	66 47 32	2559	68 27 24	2564	70 7 9	2569	71 46 48	2574
	α Aquilæ	E.	56 47 4	3098	55 18 52	3141	53 51 32	3188	52 25 8	3239

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Fomalhaut	W.	92 20 35	3319	93 44 24	3320	95 8 12	3320	96 32 0	3321
	SATURN	W.	85 27 58	3044	86 57 16	3043	88 26 35	3043	89 55 54	3042
	α Pegasi	W.	77 14 4	3441	78 35 34	3437	79 57 8	3433	81 18 47	3430
	α Arietis	W.	33 45 10	3593	35 3 52	3556	36 23 14	3523	37 43 13	3493
	JUPITER	E.	30 39 37	3141	29 12 18	3143	27 45 0	3144	26 17 44	3146
	Pollux	E.	46 22 1	3163	44 55 7	3168	43 28 19	3173	42 1 37	3178
	SUN	E.	99 26 54	3449	98 5 33	3449	96 44 12	3448	95 22 50	3447
10	Fomalhaut	W.	103 30 52	3322	104 54 38	3321	106 18 25	3321	107 42 12	3320
	SATURN	W.	97 23 0	3030	98 52 35	3026	100 22 15	3022	101 52 0	3017
	α Pegasi	W.	88 8 5	3410	89 30 10	3406	90 52 19	3402	92 14 33	3398
	α Arietis	W.	44 30 41	3374	45 53 27	3355	47 16 35	3336	48 40 5	3318
	Pollux	E.	34 49 47	3209	33 23 48	3218	31 57 59	3227	30 32 22	3238
	SUN	E.	88 35 32	3435	87 13 55	3431	85 52 13	3426	84 30 26	3421
11	SATURN	W.	109 22 29	2986	110 52 59	2978	112 23 39	2970	113 54 29	2962
	α Pegasi	W.	99 6 56	3377	100 29 39	3373	101 52 26	3369	103 15 18	3365
	α Arietis	W.	55 42 30	3238	57 7 54	3223	58 33 36	3208	59 59 36	3193
	Aldebaran	W.	22 13 1	3017	23 42 53	3008	25 12 56	3000	26 43 9	2991
	SUN	E.	77 39 52	3387	76 17 21	3379	74 54 41	3371	73 31 51	3362
12	α Arietis	W.	67 14 1	3119	68 41 47	3105	70 9 50	3090	71 38 12	3076
	Aldebaran	W.	34 17 8	2942	35 48 34	2931	37 20 14	2919	38 52 8	2907
	SUN	E.	66 34 55	3310	65 10 55	3299	63 46 42	3287	62 22 15	3274
13	α Arietis	W.	79 4 29	3001	80 34 40	2987	82 5 9	2972	83 35 57	2957
	Aldebaran	W.	46 35 33	2845	48 9 3	2831	49 42 51	2817	51 16 56	2803
	SUN	E.	55 16 15	3208	53 50 16	3194	52 24 0	3180	50 57 27	3165
14	α Arietis	W.	91 14 38	2883	92 47 18	2869	94 20 17	2855	95 53 34	2841
	Aldebaran	W.	59 12 3	2731	60 48 2	2716	62 24 20	2701	64 0 59	2686
	SUN	E.	43 40 16	3091	42 11 56	3076	40 43 18	3061	39 14 21	3047
15	α Arietis	W.	103 44 31	2773	105 19 34	2760	106 54 54	2748	108 30 30	2735
	Aldebaran	W.	72 9 19	2610	73 48 1	2595	75 27 3	2580	77 6 26	2564
	SUN	E.	31 45 4	2975	30 14 20	2962	28 43 19	2949	27 12 2	2936
20	SUN	W.	33 18 41	2540	34 58 58	2535	36 39 22	2532	38 19 51	2529
	α Aquilæ	E.	87 52 43	2761	86 17 24	2762	84 42 6	2763	83 6 50	2766
21	SUN	W.	46 42 53	2525	48 23 32	2526	50 4 9	2527	51 44 46	2528
	α Aquilæ	E.	75 12 12	2805	73 37 51	2818	72 3 46	2833	70 30 1	2849
	Fomalhaut	E.	108 35 43	2478	106 53 59	2474	105 12 9	2470	103 30 14	2469
22	SUN	W.	60 7 4	2542	61 47 19	2546	63 27 29	2550	65 7 33	2554
	α Aquilæ	E.	62 47 15	2961	61 16 13	2991	59 45 48	3023	58 16 4	3059
	Fomalhaut	E.	95 0 25	2471	93 18 31	2474	91 36 42	2478	89 54 58	2482
	SATURN	E.	101 23 27	2202	99 35 3	2206	97 46 45	2210	95 58 32	2214
	α Pegasi	E.	109 56 42	2623	108 18 18	2618	106 39 47	2614	105 1 11	2612
23	SUN	W.	73 26 19	2580	75 5 42	2585	76 44 58	2591	78 24 5	2597
	α Aquilæ	E.	50 59 45	3296	49 35 29	3359	48 12 26	3428	46 50 41	3504

Day of the Month.	Name and Direction of Object.	
9	Fomalhaut	W.
	SATURN	W.
	a Pegasi	W.
	a Arietis	W.
	JUPITER	E.
	Pollux	E.
	SUN	E.
10	Fomalhaut	W.
	SATURN	W.
	a Pegasi	W
	a Arietis	W
	Pollux	E.
	SUN	E.
11	SATURN	W
	a Pegasi	W
	a Arietis	W
	Aldebaran	W
	SUN	
12	a Arietis	
	Aldebaran	
	SUN	
13	a Arietis	
	Aldebaran	
	SUN	
14	a Arietis	
	Aldebar	
	SUN	
15	a Ariet	
	Aldeb	
	SUN	
20	SUN	
	a Aq	
21	S	
	a A	
	F	
22	S	
	a	
	F	
23		

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
23	Fomalhaut	E.	81 28 3	2513	79 47 8	2522	78 6 25	2530	76 25 54	2540
	SATURN	E.	86 59 10	2239	85 11 40	2245	83 24 19	2250	81 37 5	2256
	α Pegasi	E.	96 47 57	2616	95 9 24	2620	93 30 56	2624	91 52 34	2629
24	SUN	W.	86 37 30	2631	88 15 43	2638	89 53 47	2645	91 31 41	2652
	Fomalhaut	E.	68 7 2	2600	66 28 7	2615	64 49 32	2630	63 11 18	2646
	SATURN	E.	72 43 10	2287	70 56 51	2293	69 10 41	2300	67 24 41	2306
	α Pegasi	E.	83 42 45	2666	82 5 19	2676	80 28 6	2686	78 51 7	2697
25	SUN	W.	99 38 41	2690	101 15 34	2698	102 52 17	2706	104 28 49	2713
	Antares	W.	33 54 9	2535	35 34 34	2528	37 15 8	2523	38 55 49	2519
	Fomalhaut	E.	55 6 10	2747	53 30 32	2772	51 55 28	2799	50 20 59	2828
	SATURN	E.	58 37 8	2341	56 52 8	2348	55 7 18	2355	53 22 38	2362
	α Pegasi	E.	70 50 16	2765	69 15 2	2781	67 40 9	2799	66 5 40	2818
	α Arietis	E.	113 49 25	2543	112 9 11	2545	110 29 0	2548	108 48 53	2552
26	SUN	W.	112 28 49	2755	114 4 16	2763	115 39 32	2772	117 14 37	2780
	Antares	W.	47 19 55	2520	49 0 41	2522	50 41 24	2524	52 22 4	2527
	Fomalhaut	E.	42 39 3	3018	41 9 12	3068	39 40 23	3124	38 12 42	3185
	SATURN	E.	44 41 57	2398	42 58 20	2406	41 14 54	2413	39 31 38	2421
	α Pegasi	E.	58 19 53	2933	56 48 15	2960	55 17 11	2989	53 46 45	3022
	α Arietis	E.	100 29 49	2577	98 50 22	2582	97 11 2	2588	95 31 51	2594
27	SUN	W.	125 7 12	2825	126 41 8	2834	128 14 52	2843	129 48 24	2852
	Antares	W.	60 43 59	2551	62 24 2	2556	64 3 57	2562	65 43 44	2568
	SATURN	E.	30 58 2	2459	29 15 51	2467	27 33 52	2475	25 52 3	2482
	α Pegasi	E.	46 25 47	3231	45 0 14	3284	43 35 44	3343	42 12 22	3408
	α Arietis	E.	87 18 18	2632	85 40 7	2640	84 2 7	2649	82 24 19	2658
	Aldebaran	E.	119 16 40	2480	117 35 0	2488	115 53 30	2496	114 12 11	2504
28	Antares	W.	74 0 29	2601	75 39 22	2608	77 18 5	2615	78 56 39	2624
	SATURN	E.	17 25 46	2523	15 45 5	2531	14 4 35	2540	12 24 17	2549
	α Arietis	E.	74 18 29	2708	72 42 0	2719	71 5 46	2731	69 29 47	2743
	Aldebaran	E.	105 48 21	2543	104 8 8	2551	102 28 6	2559	100 48 15	2568
29	Antares	W.	87 6 47	2663	88 44 16	2672	90 21 33	2681	91 58 39	2689
	α Aquilæ	W.	46 9 0	3806	47 23 56	3751	48 39 49	3704	49 56 32	3662
	α Arietis	E.	61 34 3	2810	59 59 49	2825	58 25 54	2842	56 52 20	2859
	Aldebaran	E.	92 31 54	2610	90 53 13	2618	89 14 43	2627	87 36 25	2636
30	Antares	W.	100 1 6	2736	101 36 58	2746	103 12 37	2756	104 48 4	2766
	α Aquilæ	W.	56 29 52	3513	57 50 2	3493	59 10 34	3475	60 31 26	3460
	α Arietis	E.	49 10 20	2958	47 39 15	2981	46 8 39	3006	44 38 35	3034
	Aldebaran	E.	79 27 53	2681	77 50 47	2689	76 13 53	2698	74 37 11	2707
	JUPITER	E.	110 53 36	2714	109 17 15	2723	107 41 6	2732	106 5 8	2741

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S					Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.	Diff. for 1 Hour.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.			
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Mon.	1	12 27 7.41	9.044	S. 2 55 55.7	− 58.28	16 0.69	64.29	10 4.87	0.810
Tues.	2	12 30 44.59	9.056	3 19 13.5	58.20	16 0.97	64.33	10 24.19	0.798
Wed.	3	12 34 22.06	9.068	3 42 29.0	58.10	16 1.24	64.38	10 43.22	0.786
Thur.	4	12 37 59.86	9.082	4 5 42.0	− 57.99	16 1.52	64.43	11 1.92	0.772
Frid.	5	12 41 38.00	9.097	4 28 52.3	57.86	16 1.79	64.48	11 20.28	0.757
Sat.	6	12 45 16.51	9.113	4 51 59.2	57.72	16 2.07	64.53	11 38.28	0.741
SUN.	7	12 48 55.41	9.130	5 15 2.6	− 57.56	16 2.34	64.59	11 55.88	0.725
Mon.	8	12 52 34.71	9.148	5 38 2.1	57.39	16 2.61	64.65	12 13.08	0.707
Tues.	9	12 56 14.46	9.166	6 0 57.3	57.20	16 2.88	64.71	12 29.84	0.689
Wed.	10	12 59 54.66	9.185	6 23 47.9	− 57.00	16 3.15	64.78	12 46.16	0.670
Thur.	11	13 3 35.33	9.205	6 46 33.6	56.79	16 3.42	64.85	13 2.00	0.650
Frid.	12	13 7 16.48	9.226	7 9 13.9	56.56	16 3.69	64.92	13 17.35	0.629
Sat.	13	13 10 58.14	9.248	7 31 48.4	− 56.31	16 3.96	64.99	13 32.19	0.608
SUN.	14	13 14 40.34	9.270	7 54 16.9	56.05	16 4.23	65.07	13 46.52	0.585
Mon.	15	13 18 23.08	9.293	8 16 38.8	55.77	16 4.50	65.15	14 0.29	0.562
Tues.	16	13 22 6.38	9.317	8 38 53.8	− 55.47	16 4.78	65.23	14 13.50	0.539
Wed.	17	13 25 50.25	9.341	9 1 1.7	55.16	16 5.05	65.31	14 26.15	0.516
Thur.	18	13 29 34.71	9.366	9 23 1.8	54.85	16 5.33	65.40	14 38.21	0.491
Frid.	19	13 33 19.77	9.391	9 44 53.9	− 54.49	16 5.60	65.49	14 49.67	0.465
Sat.	20	13 37 5.44	9.416	10 6 37.4	54.12	16 5.87	65.58	15 0.52	0.439
SUN.	21	13 40 51.73	9.442	10 28 12.0	53.75	16 6.14	65.67	15 10.77	0.413
Mon.	22	13 44 38.66	9.469	10 49 37.2	− 53.35	16 6.42	65.76	15 20.36	0.386
Tues.	23	13 48 26.24	9.497	11 10 52.7	52.93	16 6.69	65.86	15 29.32	0.359
Wed.	24	13 52 14.48	9.525	11 31 58.0	52.50	16 6.96	65.96	15 37.61	0.331
Thur.	25	13 56 3.39	9.554	11 52 52.8	− 52.05	16 7.23	66.07	15 45.22	0.303
Frid.	26	13 59 53.00	9.583	12 13 36.6	51.58	16 7.50	66.17	15 52.15	0.274
Sat.	27	14 3 43.32	9.612	12 34 .8.9	51.10	16 7.77	66.28	15 58.37	0.244
SUN.	28	14 7 34.36	9.642	12 54 29.5	− 50.60	16 8.03	66.39	16 3.87	0.214
Mon.	29	14 11 26.14	9.674	13 14 38.1	50.09	16 8.29	66.50	16 8.64	0.183
Tues.	30	14 15 18.67	9.706	13 34 34.1	49.56	16 8.55	66.61	16 12.65	0.151
Wed.	31	14 19 11.96	9.738	13 54 17.1	49.01	16 8.80	66.72	16 15.89	0.119
Thur.	32	14 23 6.04	9.771	S. 14 13 46.9	− 48.45	16 9.06	66.83	16 18.36	0.086

Note.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.18$ from the sidereal time. The sign − prefixed to the hourly change of declination indicates that south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ′ ″	″	m s	s	h m s
Mon.	1	12 27 8.93	9.046	S. 2 56 5.5	−58.29	10 5.01	0.810	12 37 13.94
Tues.	2	12 30 46.16	9.058	3 19 23.6	58.21	10 24.33	0.798	12 41 10.49
Wed.	3	12 34 23.68	9.070	3 42 39.4	58.11	10 43.36	0.786	12 45 7.04
Thur.	4	12 38 1.53	9.084	4 5 52.7	−58.00	11 2.06	0.772	12 49 3.59
Frid.	5	12 41 39.72	9.099	4 29 3.2	57.87	11 20.42	0.757	12 53 0.14
Sat.	6	12 45 18.28	9.115	4 52 10.4	57.73	11 38.42	0.741	12 56 56.70
SUN.	7	12 48 57.23	9.131	5 15 14.0	−57.57	11 56.02	0.725	13 0 53.25
Mon.	8	12 52 36.58	9.149	5 38 13.8	57.40	12 13.22	0.707	13 4 49.80
Tues.	9	12 56 16.37	9.167	6 1 9.2	57.21	12 29.98	0.689	13 8 46.35
Wed.	10	12 59 56.61	9.186	6 24 0.0	−57.01	12 46.30	0.670	13 12 42.91
Thur.	11	13 3 37.32	9.206	6 46 45.9	56.80	13 2.14	0.650	13 16 39.46
Frid.	12	13 7 18.52	9.227	7 9 26.4	56.57	13 17.49	0.629	13 20 36.01
Sat.	13	13 11 0.23	9.249	7 32 1.1	−56.32	13 32.33	0.608	13 24 32.56
SUN.	14	13 14 42.47	9.271	7 54 29.7	56.06	13 46.65	0.585	13 28 29.12
Mon.	15	13 18 25.25	9.294	8 16 51.8	55.78	14 0.42	0.562	13 32 25.67
Tues.	16	13 22 8.59	9.318	8 39 7.0	−55.48	14 13.63	0.539	13 36 22.22
Wed.	17	13 25 52.50	9.342	9 1 15.0	55.17	14 26.27	0.516	13 40 18.77
Thur.	18	13 29 37.00	9.367	9 23 15.2	54.84	14 38.33	0.491	13 44 15.33
Frid.	19	13 33 22.10	9.392	9 45 7.4	−54.49	14 49.78	0.465	13 48 11.88
Sat.	20	13 37 7.80	9.417	10 6 50.9	54.12	15 0.63	0.439	13 52 8.43
SUN.	21	13 40 54.12	9.443	10 28 25.6	53.74	15 10.87	0.413	13 56 4.99
Mon.	22	13 44 41.08	9.470	10 49 50.8	−53.35	15 20.46	0.386	14 0 1.54
Tues.	23	13 48 28.69	9.497	11 11 6.4	52.93	15 29.41	0.359	14 3 58.10
Wed.	24	13 52 16.96	9.525	11 32 11.7	52.50	15 37.69	0.331	14 7 54.65
Thur.	25	13 56 5.90	9.554	11 53 6.4	−52.05	15 45.30	0.303	14 11 51.20
Frid.	26	13 59 55.54	9.583	12 13 50.2	51.58	15 52.22	0.274	14 15 47.76
Sat.	27	14 3 45.88	9.612	12 34 22.5	51.10	15 58.43	0.244	14 19 44.31
SUN.	28	14 7 36.94	9.642	12 54 43.1	−50.60	16 3.92	0.214	14 23 40.86
Mon.	29	14 11 28.74	9.674	13 14 51.6	50.09	16 8.68	0.183	14 27 37.42
Tues.	30	14 15 21.29	9.706	13 34 47.5	49.56	16 12.68	0.151	14 31 33.97
Wed.	31	14 19 14.60	9.738	13 54 30.4	49.01	16 15.92	0.119	14 35 30.52
Thur.	32	14 23 8.70	9.771	S.14 14 0.1	−48.45	16 18.38	0.086	14 39 27.08

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign − prefixed to the hourly change of declination indicates that south declinations are increasing.

Diff. for 1 Hour, $+9^s.8565$. (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		TRUE LONGITUDE.		Diff. for 1 Hour.	LATITUDE.			
		λ	λ′					
		° ′ ″	′ ″	″	″			h m s
1	274	187 23 51.0	23 27.5	147.51	— 0.67	0.000 3662	– 52.2	11 20 54.21
2	275	188 22 52.3	22 28.7	147.59	0.75	0.000 2412	52.0	11 16 58.30
3	276	189 21 55.6	21 31.9	147.68	0.81	0.000 1165	51.8	11 13 2.40
4	277	190 21 1.0	20 37.2	147.77	— 0.83	9.999 9924	– 51.7	11 9 6.49
5	278	191 20 8.5	19 44.7	147.86	0.83	9.999 8686	51.5	11 5 10.58
6	279	192 19 18.2	18 54.3	147.95	0.81	9.999 7452	51.3	11 1 14.68
7	280	193 18 30.2	18 6.2	148.04	— 0.76	9.999 6223	– 51.2	10 57 18.77
8	281	194 17 44.4	17 20.4	148.14	0.68	9.999 4997	51.0	10 53 22.87
9	282	195 17 0.9	16 36.8	148.24	0.58	9.999 3773	50.9	10 49 26.96
10	283	196 16 19.7	15 55.5	148.33	— 0.47	9.999 2552	– 50.8	10 45 31.05
11	284	197 15 40.9	15 16.6	148.43	0.36	9.999 1332	50.8	10 41 35.15
12	285	198 15 4.3	14 39.9	148.53	0.23	9.999 0114	50.8	10 37 39.24
13	286	199 14 30.1	14 5.6	148.62	— 0.10	9.998 8896	– 50.8	10 33 43.33
14	287	200 13 58.1	13 33.5	148.72	+ 0.01	9.998 7678	50.8	10 29 47.42
15	288	201 13 28.4	13 3.7	148.81	0.12	9.998 6458	50.9	10 25 51.52
16	289	202 13 0.9	12 36.1	148.90	+ 0.22	9.998 5235	– 51.0	10 21 55.61
17	290	203 12 35.5	12 10.6	148.99	0.28	9.998 4011	51.1	10 17 59.70
18	291	204 12 12.2	11 47.2	149.07	0.30	9.998 2783	51.2	10 14 3.79
19	292	205 11 50.8	11 25.7	149.15	+ 0.31	9.998 1554	– 51.3	10 10 7.89
20	293	206 11 31.4	11 6.2	149.23	0.28	9.998 0323	51.3	10 6 11.98
21	294	207 11 13.7	10 48.4	149.30	0.22	9.997 9092	51.3	10 2 16.08
22	295	208 10 57.8	10 32.4	149.37	+ 0.13	9.997 7862	– 51.2	9 58 20.17
23	296	209 10 43.7	10 18.1	149.44	+ 0.03	9.997 6635	51.0	9 54 24.26
24	297	210 10 31.2	10 5.5	149.51	— 0.10	9.997 5412	50.8	9 50 28.35
25	298	211 10 20.3	9 54.5	149.58	— 0.23	9.997 4196	– 50.5	9 46 32.44
26	299	212 10 11.1	9 45.2	149.65	0.36	9.997 2988	50.1	9 42 36.54
27	300	213 10 3.5	9 37.5	149.72	0.47	9.997 1791	49.7	9 38 40.63
28	301	214 9 57.7	9 31.6	149.79	— 0.57	9.997 0604	– 49.2	9 34 44.72
29	302	215 9 53.6	9 27.4	149.87	0.66	9.996 9430	48.6	9 30 48.81
30	303	216 9 51.3	9 25.0	149.94	0.72	9.996 8270	48.0	9 26 52.90
31	304	217 9 50.7	9 24.3	150.02	0.75	9.996 7124	47.4	9 22 57.00
32	305	218 9 52.1	9 25.5	150.09	— 0.75	9.996 5992	– 46.8	9 19 1.09

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ′ are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour,
— 9ˢ.8296.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 21.0	15 16.9	56 14.3	− 1.25	55 59.4	− 1.24	11 32.2	1.89	13.0
2	15 12.9	15 9.0	55 44.5	1.22	55 30.0	1.18	12 17.0	1.85	14.0
3	15 5.2	15 1.6	55 16.2	1.12	55 3.1	1.05	13 1.1	1.83	15.0
4	14 58.3	14 55.3	54 50.9	− 0.97	54 39.8	− 0.87	13 45.1	1.84	16.0
5	14 52.6	14 50.4	54 30.0	0.75	54 21.8	0.62	14 29.5	1.87	17.0
6	14 48.6	14 47.3	54 15.3	0.47	54 10.7	− 0.30	15 14.8	1.91	18.0
7	14 46.6	14 46.5	54 8.1	− 0.12	54 7.7	+ 0.06	16 1.1	1.95	19.0
8	14 47.1	14 48.3	54 9.7	+ 0.26	54 14.1	0.47	16 48.6	2.00	20.0
9	14 50.2	14 52.8	54 21.1	0.68	54 30.6	0.90	17 37.0	2.04	21.0
10	14 56.0	15 0.0	54 42.7	+ 1.11	54 57.3	+ 1.32	18 26.3	2.06	22.0
11	15 4.7	15 10.0	55 14.3	1.51	55 33.6	1.69	19 15.9	2.07	23.0
12	15 15.8	15 22.1	55 55.1	1.86	56 18.4	2.01	20 5.8	2.08	24.0
13	15 28.9	15 36.0	56 43.2	+ 2.12	57 9.1	+ 2.20	20 55.8	2.09	25.0
14	15 43.2	15 50.5	57 35.7	2.24	58 2.5	2.23	21 46.0	2.10	26.0
15	15 57.7	16 4.6	58 28.9	2.17	58 54.3	2.06	22 36.9	2.14	27.0
16	16 11.1	16 17.0	59 18.0	+ 1.90	59 39.6	+ 1.69	23 28.8	2.19	28.0
17	16 22.1	16 26.3	59 58.4	1.44	60 13.9	1.15	δ	. .	29.0
18	16 29.5	16 31.7	60 25.8	0.83	60 33.8	+ 0.50	0 22.2	2.27	0.6
19	16 32.8	16 32.8	60 37.7	+ 0.16	60 37.6	− 0.16	1 17.7	2.36	1.6
20	16 31.7	16 29.7	60 33.7	− 0.47	60 26.3	0.76	2 15.4	2.44	2.6
21	16 26.8	16 23.1	60 15.6	1.01	60 2.2	1.22	3 14.7	2.49	3.6
22	16 18.8	16 14.1	59 46.5	− 1.39	59 29.0	− 1.51	4 14.6	2.48	4.6
23	16 9.0	16 3.7	59 10.2	1.60	58 50.6	1.65	5 13.7	2.42	5.6
24	15 58.2	15 52.7	58 30.6	1.67	58 10.4	1.67	6 10.7	2.31	6.6
25	15 47.2	15 41.8	57 50.5	− 1.65	57 30.9	− 1.61	7 4.7	2.18	7.6
26	15 36.6	15 31.7	57 11.9	1.56	56 53.6	1.50	7 55.6	2.06	8.6
27	15 27.0	15 22.4	56 36.0	1.43	56 19.3	1.36	8 43.7	1.96	9.6
28	15 18.1	15 14.0	56 3.4	− 1.29	55 48.4	− 1.22	9 29.6	1.88	10.6
29	15 10.1	15 6.5	55 34.2	1.15	55 20.9	1.08	10 14.0	1.83	11.6
30	15 3.1	14 59.9	55 8.4	1.01	54 56.7	0.93	10 57.7	1.81	12.6
31	14 57.0	14 54.3	54 46.0	0.86	54 36.2	0.78	11 41.2	1.82	13.6
32	14 51.9	14 49.7	54 27.3	− 0.69	54 19.5	− 0.60	12 25.3	1.85	14.6

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 1.					**WEDNESDAY 3.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	23 48 12.10	2.0231	S. 5 11 35.0	10.923	0	1 23 4.04	1.9456	N. 3 35 57.1	10.741
1	23 50 13.41	2.0205	5 0 39.1	10.939	1	1 25 0.76	1.9450	3 46 40.9	10.718
2	23 52 14.56	2.0179	4 49 42.3	10.955	2	1 26 57.44	1.9444	3 57 23.2	10.693
3	23 54 15.56	2.0154	4 38 44.5	10.970	3	1 28 54.09	1.9439	4 8 4.1	10.669
4	23 56 16.41	2.0130	4 27 45.9	10.983	4	1 30 50.71	1.9434	4 18 43.5	10.643
5	23 58 17.12	2.0106	4 16 46.5	10.996	5	1 32 47.30	1.9429	4 29 21.3	10.618
6	0 0 17.68	2.0082	4 5 46.4	11.008	6	1 34 43.86	1.9425	4 39 57.6	10.591
7	0 2 18.10	2.0058	3 54 45.6	11.018	7	1 36 40.40	1.9423	4 50 32.2	10.563
8	0 4 18.38	2.0035	3 43 44.2	11.028	8	1 38 36.93	1.9419	5 1 5.2	10.536
9	0 6 18.52	2.0013	3 32 42.2	11.038	9	1 40 33.43	1.9415	5 11 36.5	10.507
10	0 8 18.53	1.9991	3 21 39.7	11.045	10	1 42 29.91	1.9413	5 22 6.0	10.477
11	0 10 18.41	1.9969	3 10 36.8	11.053	11	1 44 26.38	1.9411	5 32 33.7	10.447
12	0 12 18.16	1.9948	2 59 33.4	11.059	12	1 46 22.84	1.9409	5 42 59.6	10.416
13	0 14 17.78	1.9927	2 48 29.7	11.064	13	1 48 19.29	1.9408	5 53 23.6	10.384
14	0 16 17.28	1.9906	2 37 25.7	11.069	14	1 50 15.73	1.9407	6 3 45.7	10.353
15	0 18 16.65	1.9885	2 26 21.4	11.073	15	1 52 12.17	1.9406	6 14 5.9	10.319
16	0 20 15.90	1.9866	2 15 16.9	11.077	16	1 54 8.60	1.9405	6 24 24.0	10.285
17	0 22 15.04	1.9847	2 4 12.2	11.078	17	1 56 5.03	1.9405	6 34 40.1	10.252
18	0 24 14.07	1.9828	1 53 7.5	11.079	18	1 58 1.46	1.9405	6 44 54.2	10.217
19	0 26 12.98	1.9809	1 42 2.7	11.080	19	1 59 57.89	1.9406	6 55 6.1	10.181
20	0 28 11.78	1.9792	1 30 57.9	11.079	20	2 1 54.33	1.9408	7 5 15.9	10.145
21	0 30 10.48	1.9774	1 19 53.2	11.078	21	2 3 50.78	1.9409	7 15 23.5	10.108
22	0 32 9.07	1.9757	1 8 48.6	11.076	22	2 5 47.24	1.9411	7 25 28.8	10.070
23	0 34 7.56	1.9740	S. 0 57 44.1	11.073	23	2 7 43.71	1.9413	N. 7 35 31.9	10.032
	TUESDAY 2.					**THURSDAY 4.**			
0	0 36 5.95	1.9723	S. 0 46 39.8	11.069	0	2 9 40.19	1.9415	N. 7 45 32.6	9.993
1	0 38 4.24	1.9708	0 35 35.8	11.064	1	2 11 36.69	1.9418	7 55 31.0	9.953
2	0 40 2.44	1.9693	0 24 32.1	11.059	2	2 13 33.20	1.9421	8 5 27.0	9.913
3	0 42 0.55	1.9678	0 13 28.7	11.053	3	2 15 29.74	1.9425	8 15 20.6	9.873
4	0 43 58.57	1.9663	S. 0 2 25.7	11.047	4	2 17 26.30	1.9428	8 25 11.7	9.831
5	0 45 56.50	1.9648	N. 0 8 36.9	11.038	5	2 19 22.88	1.9433	8 35 0.3	9.789
6	0 47 54.35	1.9635	0 19 38.9	11.029	6	2 21 19.49	1.9438	8 44 46.4	9.747
7	0 49 52.12	1.9621	0 30 40.4	11.020	7	2 23 16.13	1.9442	8 54 29.9	9.703
8	0 51 49.80	1.9608	0 41 41.3	11.009	8	2 25 12.79	1.9447	9 4 10.8	9.659
9	0 53 47.41	1.9596	0 52 41.5	10.998	9	2 27 9.49	1.9452	9 13 49.0	9.615
10	0 55 44.95	1.9583	1 3 41.1	10.987	10	2 29 6.22	1.9458	9 23 24.6	9.570
11	0 57 42.41	1.9572	1 14 39.9	10.974	11	2 31 2.99	1.9464	9 32 57.4	9.524
12	0 59 39.81	1.9561	1 25 38.0	10.961	12	2 32 59.79	1.9470	9 42 27.5	9.478
13	1 1 37.14	1.9549	1 36 35.2	10.947	13	2 34 56.63	1.9477	9 51 54.8	9.431
14	1 3 34.40	1.9538	1 47 31.6	10.932	14	2 36 53.51	1.9484	10 1 19.2	9.383
15	1 5 31.60	1.9528	1 58 27.0	10.916	15	2 38 50.44	1.9492	10 10 40.8	9.336
16	1 7 28.74	1.9519	2 9 21.5	10.900	16	2 40 47.41	1.9499	10 19 59.5	9.287
17	1 9 25.83	1.9510	2 20 15.0	10.883	17	2 42 44.43	1.9508	10 29 15.2	9.237
18	1 11 22.86	1.9501	2 31 7.4	10.864	18	2 44 41.50	1.9516	10 38 27.9	9.188
19	1 13 19.84	1.9493	2 41 58.7	10.845	19	2 46 38.62	1.9524	10 47 37.7	9.138
20	1 15 16.77	1.9484	2 52 48.8	10.826	20	2 48 35.79	1.9533	10 56 44.4	9.086
21	1 17 13.65	1.9477	3 3 37.8	10.806	21	2 50 33.01	1.9542	11 5 48.0	9.034
22	1 19 10.49	1.9470	3 14 25.5	10.785	22	2 52 30.29	1.9551	11 14 48.5	8.982
23	1 21 7.29	1.9463	3 25 12.0	10.763	23	2 54 27.62	1.9560	11 23 45.8	8.929
24	1 23 4.04	1.9456	N. 3 35 57.1	10.741	24	2 56 25.01	1.9570	N. 11 32 40.0	8.877

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 5.					SUNDAY 7.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	2 56 25.01	1.9570	N.11 32 40.0	8.877	0	4 31 54.32	2.0281	N.17 27 5.9	5.699
1	2 58 22.46	1.9581	11 41 31.0	8.823	1	4 33 56.06	2.0298	17 32 45.5	5.622
2	3 0 19.98	1.9592	11 50 18.7	8.768	2	4 35 57.90	2.0316	17 38 20.5	5.543
3	3 2 17.56	1.9602	11 59 3.1	8.713	3	4 37 59.85	2.0334	17 43 50.7	5.464
4	3 4 15.20	1.9613	12 7 44.2	8.657	4	4 40 1.91	2.0352	17 49 16.2	5.385
5	3 6 12.91	1.9624	12 16 21.9	8.601	5	4 42 4.07	2.0370	17 54 36.9	5.306
6	3 8 10.69	1.9635	12 24 56.3	8.544	6	4 44 6.35	2.0388	17 59 52.9	5.226
7	3 10 8.53	1.9646	12 33 27.2	8.487	7	4 46 8.73	2.0406	18 5 4.0	5.145
8	3 12 6.44	1.9658	12 41 54.7	8.429	8	4 48 11.22	2.0425	18 10 10.3	5.064
9	3 14 4.43	1.9671	12 50 18.7	8.371	9	4 50 13.83	2.0443	18 15 11.7	4.983
10	3 16 2.49	1.9683	12 58 39.2	8.312	10	4 52 16.54	2.0460	18 20 8.2	4.902
11	3 18 0.62	1.9695	13 6 56.1	8.252	11	4 54 19.35	2.0478	18 24 59.8	4.819
12	3 19 58.83	1.9708	13 15 9.4	8.192	12	4 56 22.28	2.0497	18 29 46.5	4.737
13	3 21 57.12	1.9722	13 23 19.1	8.132	13	4 58 25.32	2.0515	18 34 28.2	4.654
14	3 23 55.49	1.9734	13 31 25.2	8.071	14	5 0 28.46	2.0533	18 39 5.0	4.571
15	3 25 53.93	1.9748	13 39 27.6	8.009	15	5 2 31.71	2.0552	18 43 36.7	4.487
16	3 27 52.46	1.9762	13 47 26.3	7.948	16	5 4 35.08	2.0570	18 48 3.4	4.403
17	3 29 51.07	1.9776	13 55 21.3	7.885	17	5 6 38.55	2.0587	18 52 25.0	4.318
18	3 31 49.77	1.9790	14 3 12.5	7.822	18	5 8 42.12	2.0605	18 56 41.6	4.233
19	3 33 48.55	1.9803	14 10 59.9	7.758	19	5 10 45.81	2.0623	19 0 53.0	4.148
20	3 35 47.41	1.9818	14 18 43.4	7.693	20	5 12 49.60	2.0642	19 4 59.3	4.063
21	3 37 46.36	1.9833	14 26 23.1	7.629	21	5 14 53.51	2.0660	19 9 0.5	3.977
22	3 39 45.40	1.9848	14 33 58.9	7.564	22	5 16 57.52	2.0678	19 12 56.5	3.891
23	3 41 44.53	1.9863	N.14 41 30.8	7.498	23	5 19 1.64	2.0695	N.19 16 47.4	3.804
	SATURDAY 6.					MONDAY 8.			
0	3 43 43.75	1.9878	N.14 48 58.7	7.432	0	5 21 5.86	2.0713	N.19 20 33.0	3.717
1	3 45 43.06	1.9893	14 56 22.6	7.365	1	5 23 10.19	2.0731	19 24 13.4	3.629
2	3 47 42.46	1.9908	15 3 42.5	7.298	2	5 25 14.63	2.0748	19 27 48.5	3.541
3	3 49 41.96	1.9924	15 10 58.4	7.231	3	5 27 19.17	2.0766	19 31 18.3	3.453
4	3 51 41.55	1.9939	15 18 10.2	7.163	4	5 29 23.82	2.0783	19 34 42.9	3.365
5	3 53 41.23	1.9955	15 25 17.9	7.093	5	5 31 28.57	2.0801	19 38 2.1	3.276
6	3 55 41.01	1.9972	15 32 21.4	7.024	6	5 33 33.43	2.0818	19 41 16.0	3.187
7	3 57 40.89	1.9988	15 39 20.8	6.955	7	5 35 38.39	2.0836	19 44 24.5	3.098
8	3 59 40.87	2.0004	15 46 16.0	6.885	8	5 37 43.46	2.0853	19 47 27.7	3.008
9	4 1 40.94	2.0020	15 53 7.0	6.814	9	5 39 48.63	2.0870	19 50 25.5	2.918
10	4 3 41.11	2.0038	15 59 53.7	6.743	10	5 41 53.90	2.0887	19 53 17.8	2.827
11	4 5 41.39	2.0054	16 6 36.1	6.672	11	5 43 59.27	2.0903	19 56 4.7	2.737
12	4 7 41.76	2.0070	16 13 14.3	6.600	12	5 46 4.74	2.0920	19 58 46.2	2.646
13	4 9 42.23	2.0088	16 19 48.1	6.527	13	5 48 10.31	2.0937	20 1 22.2	2.554
14	4 11 42.81	2.0105	16 26 17.5	6.454	14	5 50 15.98	2.0953	20 3 52.7	2.463
15	4 13 43.49	2.0122	16 32 42.6	6.381	15	5 52 21.75	2.0970	20 6 17.7	2.370
16	4 15 44.27	2.0139	16 39 3.2	6.307	16	5 54 27.62	2.0986	20 8 37.1	2.278
17	4 17 45.16	2.0157	16 45 19.4	6.233	17	5 56 33.58	2.1002	20 10 51.0	2.186
18	4 19 46.15	2.0174	16 51 31.1	6.158	18	5 58 39.64	2.1018	20 12 59.4	2.093
19	4 21 47.25	2.0192	16 57 38.3	6.083	19	6 0 45.80	2.1034	20 15 2.2	1.999
20	4 23 48.45	2.0209	17 3 41.0	6.008	20	6 2 52.05	2.1049	20 16 59.3	1.906
21	4 25 49.76	2.0227	17 9 39.2	5.931	21	6 4 58.39	2.1065	20 18 50.9	1.813
22	4 27 51.17	2.0244	17 15 32.7	5.853	22	6 7 4.83	2.1081	20 20 36.8	1.718
23	4 29 52.69	2.0263	17 21 21.6	5.777	23	6 9 11.36	2.1096	20 22 17.1	1.625
24	4 31 54.32	2.0281	N.17 27 5.9	5.699	24	6 11 17.98	2.1111	N.20 23 51.8	1.531

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
TUESDAY 9.					THURSDAY 11.				
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	6 11 17.98	2.1111	N.20 23 51.8	1.531	0	7 54 1.92	2.1620	N.19 44 46.3	3.207
1	6 13 24.69	2.1126	20 25 20.8	1.435	1	7 56 11.66	2.1626	19 41 30.9	3.306
2	6 15 31.49	2.1141	20 26 44.0	1.340	2	7 58 21.43	2.1631	19 38 9.6	3.406
3	6 17 38.38	2.1156	20 28 1.6	1.245	3	8 0 31.23	2.1636	19 34 42.2	3.508
4	6 19 45.36	2.1170	20 29 13.4	1.149	4	8 2 41.06	2.1642	19 31 8.7	3.608
5	6 21 52.42	2.1184	20 30 19.5	1.053	5	8 4 50.93	2.1647	19 27 29.3	3.707
6	6 23 59.57	2.1198	20 31 19.8	0.958	6	8 7 0.82	2.1652	19 23 43.9	3.807
7	6 26 6.80	2.1213	20 32 14.4	0.863	7	8 9 10.75	2.1657	19 19 52.5	3.907
8	6 28 14.12	2.1227	20 33 3.3	0.766	8	8 11 20.70	2.1661	19 15 55.1	4.007
9	6 30 21.52	2.1240	20 33 46.3	0.668	9	8 13 30.68	2.1666	19 11 51.7	4.107
10	6 32 29.00	2.1253	20 34 23.5	0.572	10	8 15 40.69	2.1670	19 7 42.3	4.207
11	6 34 36.56	2.1267	20 34 54.9	0.475	11	8 17 50.72	2.1674	19 3 26.9	4.306
12	6 36 44.20	2.1280	20 35 20.5	0.378	12	8 20 0.78	2.1678	18 59 5.6	4.405
13	6 38 51.92	2.1293	20 35 40.3	0.281	13	8 22 10.86	2.1682	18 54 38.3	4.504
14	6 40 59.71	2.1305	20 35 54.2	0.183	14	8 24 20.96	2.1685	18 50 5.1	4.603
15	6 43 7.58	2.1318	20 36 2.2	0.084	15	8 26 31.08	2.1689	18 45 25.9	4.703
16	6 45 15.53	2.1330	20 36 4.3	0.013	16	8 28 41.23	2.1693	18 40 40.7	4.803
17	6 47 23.54	2.1342	20 36 0.6	0.111	17	8 30 51.39	2.1696	18 35 49.6	4.900
18	6 49 31.63	2.1354	20 35 51.0	0.209	18	8 33 1.58	2.1699	18 30 52.7	4.998
19	6 51 39.79	2.1366	20 35 35.5	0.308	19	8 35 11.78	2.1702	18 25 49.8	5.098
20	6 53 48.02	2.1378	20 35 14.0	0.407	20	8 37 22.00	2.1705	18 20 41.0	5.196
21	6 55 56.32	2.1389	20 34 46.7	0.505	21	8 39 32.24	2.1708	18 15 26.3	5.294
22	6 58 4.69	2.1400	20 34 13.4	0.605	22	8 41 42.49	2.1710	18 10 5.7	5.392
23	7 0 13.12	2.1411	N.20 33 34.1	0.704	23	8 43 52.76	2.1713	N.18 4 39.3	5.489
WEDNESDAY 10.					FRIDAY 12.				
0	7 2 21.62	2.1422	N.20 32 48.9	0.803	0	8 46 3.05	2.1716	N.17 59 7.0	5.587
1	7 4 30.18	2.1432	20 31 57.8	0.902	1	8 48 13.35	2.1718	17 53 28.9	5.684
2	7 6 38.80	2.1443	20 31 0.7	1.002	2	8 50 23.66	2.1720	17 47 44.9	5.782
3	7 8 47.49	2.1453	20 29 57.6	1.101	3	8 52 33.99	2.1723	17 41 55.1	5.878
4	7 10 56.23	2.1463	20 28 48.6	1.200	4	8 54 44.33	2.1725	17 35 59.5	5.974
5	7 13 5.04	2.1473	20 27 33.6	1.300	5	8 56 54.69	2.1727	17 29 58.2	6.070
6	7 15 13.90	2.1482	20 26 12.6	1.400	6	8 59 5.05	2.1728	17 23 51.1	6.167
7	7 17 22.82	2.1491	20 24 45.6	1.500	7	9 1 15.43	2.1731	17 17 38.2	6.263
8	7 19 31.79	2.1500	20 23 12.6	1.600	8	9 3 25.82	2.1733	17 11 19.6	6.358
9	7 21 40.82	2.1509	20 21 33.6	1.700	9	9 5 36.22	2.1735	17 4 55.3	6.453
10	7 23 49.90	2.1518	20 19 48.6	1.801	10	9 7 46.64	2.1737	16 58 25.3	6.548
11	7 25 59.03	2.1526	20 17 57.5	1.901	11	9 9 57.06	2.1738	16 51 49.6	6.643
12	7 28 8.21	2.1534	20 16 0.5	2.001	12	9 12 7.49	2.1739	16 45 8.2	6.737
13	7 30 17.44	2.1543	20 13 57.5	2.101	13	9 14 17.93	2.1741	16 38 21.2	6.830
14	7 32 26.72	2.1551	20 11 48.4	2.202	14	9 16 28.38	2.1743	16 31 28.6	6.923
15	7 34 36.05	2.1558	20 9 33.3	2.302	15	9 18 38.84	2.1744	16 24 30.4	7.017
16	7 36 45.42	2.1566	20 7 12.2	2.402	16	9 20 49.31	2.1746	16 17 26.6	7.110
17	7 38 54.84	2.1573	20 4 45.1	2.502	17	9 22 59.79	2.1748	16 10 17.2	7.203
18	7 41 4.30	2.1581	20 2 12.0	2.603	18	9 25 10.28	2.1749	16 3 2.3	7.294
19	7 43 13.81	2.1588	19 59 32.8	2.703	19	9 27 20.78	2.1750	15 55 41.9	7.386
20	7 45 23.35	2.1594	19 56 47.6	2.804	20	9 29 31.28	2.1752	15 48 16.0	7.478
21	7 47 32.94	2.1601	19 53 56.3	2.905	21	9 31 41.80	2.1753	15 40 44.6	7.568
22	7 49 42.56	2.1607	19 50 59.0	3.005	22	9 33 52.32	2.1754	15 33 7.8	7.658
23	7 51 52.22	2.1613	19 47 55.7	3.106	23	9 36 2.85	2.1755	15 25 25.6	7.748
24	7 54 1.92	2.1620	N.19 44 46.3	3.207	24	9 38 13.38	2.1757	N.15 17 38.0	7.838

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 13.					MONDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	9 38 13.38	2.1757	N.15 17 38.0	7.838	0	11 23 1.07	2.1970	N. 7 28 47.7	11.430
1	9 40 23.93	2.1759	15 9 45.0	7.928	1	11 25 12.92	2.1979	7 17 20.2	11.486
2	9 42 34.49	2.1761	15 1 46.7	8.016	2	11 27 24.82	2.1989	7 5 49.4	11.540
3	9 44 45.06	2.1763	14 53 43.1	8.104	3	11 29 36.79	2.2000	6 54 15.4	11.593
4	9 46 55.64	2.1764	14 45 34.2	8.193	4	11 31 48.82	2.2010	6 42 38.2	11.646
5	9 49 6.23	2.1766	14 37 20.0	8.279	5	11 34 0.91	2.2020	6 30 57.9	11.698
6	9 51 16.83	2.1768	14 29 0.7	8.366	6	11 36 13.06	2.2032	6 19 14.5	11.748
7	9 53 27.44	2.1769	14 20 36.1	8.453	7	11 38 25.29	2.2043	6 7 28.1	11.798
8	9 55 38.06	2.1771	14 12 6.3	8.539	8	11 40 37.58	2.2054	5 55 38.8	11.846
9	9 57 48.69	2.1773	14 3 31.4	8.624	9	11 42 49.94	2.2067	5 43 46.6	11.894
10	9 59 59.34	2.1776	13 54 51.4	8.708	10	11 45 2.38	2.2079	5 31 51.5	11.941
11	10 2 10.00	2.1778	13 46 6.4	8.793	11	11 47 14.89	2.2091	5 19 53.7	11.986
12	10 4 20.67	2.1780	13 37 16.3	8.877	12	11 49 27.47	2.2103	5 7 53.2	12.030
13	10 6 31.36	2.1783	13 28 21.2	8.960	13	11 51 40.13	2.2117	4 55 50.1	12.073
14	10 8 42.06	2.1784	13 19 21.1	9.043	14	11 53 52.88	2.2132	4 43 44.5	12.114
15	10 10 52.77	2.1787	13 10 16.1	9.124	15	11 56 5.71	2.2145	4 31 36.4	12.155
16	10 13 3.50	2.1790	13 1 6.2	9.205	16	11 58 18.62	2.2158	4 19 25.9	12.195
17	10 15 14.25	2.1793	12 51 51.5	9.286	17	12 0 31.61	2.2173	4 7 13.0	12.233
18	10 17 25.02	2.1796	12 42 31.9	9.367	18	12 2 44.70	2.2189	3 54 57.9	12.271
19	10 19 35.80	2.1799	12 33 7.5	9.447	19	12 4 57.88	2.2204	3 42 40.5	12.308
20	10 21 46.61	2.1802	12 23 38.3	9.525	20	12 7 11.15	2.2219	3 30 21.0	12.342
21	10 23 57.43	2.1805	12 14 4.5	9.603	21	12 9 24.51	2.2235	3 17 59.5	12.375
22	10 26 8.27	2.1809	12 4 26.0	9.681	22	12 11 37.97	2.2252	3 5 36.0	12.408
23	10 28 19.14	2.1813	N.11 54 42.8	9.758	23	12 13 51.53	2.2268	N. 2 53 10.5	12.440
	SUNDAY 14.					TUESDAY 16.			
0	10 30 30.02	2.1816	N.11 44 55.0	9.834	0	12 16 5.19	2.2285	N. 2 40 43.2	12.469
1	10 32 40.93	2.1821	11 35 2.7	9.909	1	12 18 18.95	2.2303	2 28 14.2	12.498
2	10 34 51.87	2.1825	11 25 5.9	9.984	2	12 20 32.82	2.2320	2 15 43.4	12.526
3	10 37 2.83	2.1829	11 15 4.6	10.058	3	12 22 46.79	2.2338	2 3 11.1	12.552
4	10 39 13.82	2.1833	11 4 58.9	10.132	4	12 25 0.88	2.2357	1 50 37.2	12.578
5	10 41 24.83	2.1838	10 54 48.8	10.204	5	12 27 15.07	2.2375	1 38 1.8	12.601
6	10 43 35.87	2.1843	10 44 34.4	10.276	6	12 29 29.38	2.2394	1 25 25.1	12.623
7	10 45 46.95	2.1848	10 34 15.7	10.348	7	12 31 43.80	2.2413	1 12 47.1	12.644
8	10 47 58.05	2.1853	10 23 52.7	10.418	8	12 33 58.34	2.2433	1 0 7.8	12.664
9	10 50 9.19	2.1859	10 13 25.5	10.488	9	12 36 13.00	2.2454	0 47 27.4	12.683
10	10 52 20.36	2.1865	10 2 54.2	10.556	10	12 38 27.79	2.2475	0 34 45.9	12.700
11	10 54 31.57	2.1871	9 52 18.8	10.624	11	12 40 42.70	2.2495	0 22 3.4	12.716
12	10 56 42.81	2.1877	9 41 39.3	10.692	12	12 42 57.73	2.2516	N. 0 9 20.0	12.730
13	10 58 54.09	2.1883	9 30 55.8	10.758	13	12 45 12.89	2.2538	S. 0 3 24.2	12.743
14	11 1 5.41	2.1890	9 20 8.3	10.823	14	12 47 28.18	2.2560	0 16 9.2	12.755
15	11 3 16.77	2.1897	9 9 17.0	10.888	15	12 49 43.61	2.2583	0 28 54.8	12.765
16	11 5 28.17	2.1903	8 58 21.8	10.952	16	12 51 59.17	2.2604	0 41 41.0	12.773
17	11 7 39.61	2.1911	8 47 22.8	11.015	17	12 54 14.86	2.2628	0 54 27.6	12.781
18	11 9 51.10	2.1919	8 36 20.0	11.078	18	12 56 30.70	2.2652	1 7 14.7	12.788
19	11 12 2.64	2.1927	8 25 13.5	11.138	19	12 58 46.68	2.2675	1 20 2.1	12.792
20	11 14 14.22	2.1935	8 14 3.4	11.198	20	13 1 2.80	2.2698	1 32 49.7	12.795
21	11 16 25.86	2.1943	8 2 49.7	11.258	21	13 3 19.06	2.2723	1 45 37.5	12.797
22	11 18 37.54	2.1952	7 51 32.5	11.316	22	13 5 35.47	2.2748	1 58 25.3	12.797
23	11 20 49.28	2.1961	7 40 11.8	11.373	23	13 7 52.04	2.2773	2 11 13.1	12.796
24	11 23 1.07	2.1970	N. 7 28 47.7	11.430	24	13 10 8.75	2.2798	S. 2 24 0.8	12.793

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 17.					FRIDAY 19.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	13 10 8.75	2.2798	S. 2 24 0.8	12.793	0	15 3 0.99	2.4300	S. 12 5 42.9	10.839
1	13 12 25.62	2.2824	2 36 48.3	12.788	1	15 5 26.89	2.4334	12 16 30.9	10.760
2	13 14 42.64	2.2850	2 49 35.4	12.783	2	15 7 53.00	2.4368	12 27 14.1	10.680
3	13 16 59.82	2.2876	3 2 22.2	12.776	3	15 10 19.31	2.4401	12 37 52.5	10.598
4	13 19 17.15	2.2903	3 15 8.5	12.768	4	15 12 45.81	2.4434	12 48 25.9	10.514
5	13 21 34.65	2.2930	3 27 54.3	12.758	5	15 15 12.52	2.4468	12 58 54.2	10.428
6	13 23 52.31	2.2958	3 40 39.4	12.746	6	15 17 39.43	2.4501	13 9 17.3	10.343
7	13 26 10.14	2.2985	3 53 23.8	12.733	7	15 20 6.53	2.4533	13 19 35.3	10.255
8	13 28 28.13	2.3013	4 6 7.4	12.718	8	15 22 33.83	2.4566	13 29 47.9	10.164
9	13 30 46.29	2.3041	4 18 50.0	12.702	9	15 25 1.32	2.4598	13 39 55.0	10.073
10	13 33 4.62	2.3069	4 31 31.6	12.684	10	15 27 29.01	2.4632	13 49 56.7	9.982
11	13 35 23.12	2.3098	4 44 12.1	12.665	11	15 29 56.90	2.4663	13 59 52.8	9.888
12	13 37 41.80	2.3128	4 56 51.4	12.644	12	15 32 24.97	2.4695	14 9 43.3	9.793
13	13 40 0.65	2.3157	5 9 29.4	12.621	13	15 34 53.24	2.4727	14 19 28.0	9.697
14	13 42 19.68	2.3187	5 22 5.9	12.597	14	15 37 21.69	2.4758	14 29 6.9	9.599
15	13 44 38.89	2.3217	5 34 41.0	12.572	15	15 39 50.33	2.4788	14 38 39.9	9.499
16	13 46 58.28	2.3247	5 47 14.5	12.544	16	15 42 19.15	2.4819	14 48 6.8	9.398
17	13 49 17.85	2.3277	5 59 46.3	12.516	17	15 44 48.16	2.4850	14 57 27.7	9.298
18	13 51 37.60	2.3308	6 12 16.4	12.486	18	15 47 17.35	2.4879	15 6 42.5	9.194
19	13 53 57.54	2.3339	6 24 44.6	12.454	19	15 49 46.71	2.4908	15 15 51.0	9.089
20	13 56 17.67	2.3371	6 37 10.9	12.421	20	15 52 16.25	2.4938	15 24 53.2	8.983
21	13 58 37.99	2.3402	6 49 35.1	12.385	21	15 54 45.97	2.4968	15 33 49.0	8.877
22	14 0 58.49	2.3433	7 1 57.1	12.348	22	15 57 15.86	2.4996	15 42 38.4	8.768
23	14 3 19.18	2.3465	S. 7 14 16.9	12.311	23	15 59 45.92	2.5024	S. 15 51 21.2	8.658
	THURSDAY 18.					SATURDAY 20.			
0	14 5 40.07	2.3497	S. 7 26 34.4	12.271	0	16 2 16.15	2.5052	S. 15 59 57.4	8.548
1	14 8 1.15	2.3529	7 38 49.4	12.229	1	16 4 46.54	2.5078	16 8 26.9	8.436
2	14 10 22.42	2.3562	7 51 1.9	12.187	2	16 7 17.09	2.5105	16 16 49.7	8.323
3	14 12 43.89	2.3594	8 3 11.8	12.142	3	16 9 47.80	2.5132	16 25 5.7	8.209
4	14 15 5.55	2.3627	8 15 18.9	12.095	4	16 12 18.67	2.5158	16 33 14.8	8.093
5	14 17 27.41	2.3660	8 27 23.2	12.047	5	16 14 49.69	2.5183	16 41 16.9	7.977
6	14 19 49.47	2.3693	8 39 24.6	11.998	6	16 17 20.86	2.5207	16 49 12.0	7.859
7	14 22 11.72	2.3726	8 51 23.0	11.947	7	16 19 52.17	2.5230	16 57 0.0	7.741
8	14 24 34.18	2.3760	9 3 18.3	11.894	8	16 22 23.62	2.5253	17 4 40.9	7.622
9	14 26 56.84	2.3793	9 15 10.3	11.840	9	16 24 55.21	2.5277	17 12 14.6	7.501
10	14 29 19.69	2.3826	9 26 59.1	11.785	10	16 27 26.94	2.5299	17 19 41.0	7.378
11	14 31 42.75	2.3860	9 38 44.5	11.727	11	16 29 58.80	2.5321	17 27 0.0	7.256
12	14 34 6.01	2.3893	9 50 26.4	11.668	12	16 32 30.79	2.5342	17 34 11.7	7.133
13	14 36 29.47	2.3928	10 2 4.7	11.608	13	16 35 2.90	2.5363	17 41 15.9	7.008
14	14 38 53.14	2.3962	10 13 39.4	11.547	14	16 37 35.14	2.5383	17 48 12.7	6.883
15	14 41 17.01	2.3995	10 25 10.3	11.483	15	16 40 7.49	2.5402	17 55 1.8	6.756
16	14 43 41.08	2.4028	10 36 37.3	11.417	16	16 42 39.96	2.5420	18 1 43.4	6.629
17	14 46 5.35	2.4063	10 48 0.3	11.350	17	16 45 12.53	2.5438	18 8 17.3	6.501
18	14 48 29.83	2.4098	10 59 19.3	11.282	18	16 47 45.21	2.5455	18 14 43.5	6.372
19	14 50 54.52	2.4132	11 10 34.1	11.212	19	16 50 17.99	2.5471	18 21 1.9	6.242
20	14 53 19.41	2.4165	11 21 44.7	11.141	20	16 52 50.86	2.5487	18 27 12.5	6.112
21	14 55 44.50	2.4198	11 32 51.0	11.068	21	16 55 23.83	2.5502	18 33 15.3	5.981
22	14 58 9.79	2.4233	11 43 52.9	10.993	22	16 57 56.88	2.5516	18 39 10.2	5.848
23	15 0 35.29	2.4267	11 54 50.2	10.917	23	17 0 30.02	2.5529	18 44 57.1	5.715
24	15 3 0.99	2.4300	S. 12 5 42.9	10.839	24	17 3 3.23	2.5541	S. 18 50 36.0	5.582

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 21.					TUESDAY 23.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	17 3 3.23	2.5541	S. 18 50 36.0	5.582	0	19 5 27.15	2.5116	S. 20 38 17.8	1.103
1	17 5 36.51	2.5553	18 56 6.9	5.448	1	19 7 57.76	2.5086	20 37 7.6	1.238
2	17 8 9.87	2.5564	19 1 29.7	5.313	2	19 10 28.18	2.5055	20 35 49.3	1.372
3	17 10 43.28	2.5574	19 6 44.5	5.178	3	19 12 58.42	2.5024	20 34 23.0	1.506
4	17 13 16.76	2.5584	19 11 51.1	5.042	4	19 15 28.47	2.4992	20 32 48.6	1.638
5	17 15 50.29	2.5592	19 16 49.5	4.905	5	19 17 58.32	2.4958	20 31 6.4	1.770
6	17 18 23.86	2.5599	19 21 39.7	4.768	6	19 20 27.97	2.4925	20 29 16.2	1.903
7	17 20 57.48	2.5607	19 26 21.7	4.631	7	19 22 57.42	2.4891	20 27 18.1	2.034
8	17 23 31.14	2.5613	19 30 55.4	4.493	8	19 25 26.66	2.4855	20 25 12.1	2.164
9	17 26 4.83	2.5618	19 35 20.9	4.355	9	19 27 55.68	2.4819	20 22 58.4	2.293
10	17 28 38.55	2.5622	19 39 38.0	4.216	10	19 30 24.49	2.4783	20 20 36.9	2.423
11	17 31 12.29	2.5625	19 43 46.8	4.077	11	19 32 53.08	2.4747	20 18 7.7	2.551
12	17 33 46.05	2.5628	19 47 47.2	3.938	12	19 35 21.45	2.4709	20 15 30.8	2.678
13	17 36 19.82	2.5629	19 51 39.3	3.798	13	19 37 49.59	2.4671	20 12 46.3	2.805
14	17 38 53.60	2.5629	19 55 22.9	3.658	14	19 40 17.50	2.4632	20 9 54.2	2.932
15	17 41 27.37	2.5629	19 58 58.2	3.518	15	19 42 45.17	2.4593	20 6 54.5	3.057
16	17 44 1.15	2.5628	20 2 25.0	3.376	16	19 45 12.61	2.4553	20 3 47.4	3.181
17	17 46 34.91	2.5626	20 5 43.3	3.235	17	19 47 39.81	2.4513	20 0 32.8	3.304
18	17 49 8.66	2.5623	20 8 53.2	3.095	18	19 50 6.76	2.4471	19 57 10.9	3.427
19	17 51 42.39	2.5620	20 11 54.7	2.953	19	19 52 33.46	2.4429	19 53 41.6	3.549
20	17 54 16.10	2.5615	20 14 47.6	2.812	20	19 54 59.91	2.4388	19 50 5.0	3.671
21	17 56 49.77	2.5609	20 17 32.1	2.671	21	19 57 26.11	2.4346	19 46 21.1	3.791
22	17 59 23.41	2.5603	20 20 8.1	2.529	22	19 59 52.06	2.4303	19 42 30.1	3.910
23	18 1 57.00	2.5595	S. 20 22 35.6	2.388	23	20 2 17.74	2.4259	S. 19 38 31.9	4.029
	MONDAY 22.					WEDNESDAY 24.			
0	18 4 30.55	2.5587	S. 20 24 54.6	2.246	0	20 4 43.17	2.4216	S. 19 34 26.6	4.147
1	18 7 4.04	2.5577	20 27 5.1	2.104	1	20 7 8.33	2.4171	19 30 14.3	4.263
2	18 9 37.47	2.5567	20 29 7.1	1.962	2	20 9 33.22	2.4127	19 25 55.0	4.378
3	18 12 10.84	2.5556	20 31 0.5	1.820	3	20 11 57.85	2.4082	19 21 28.9	4.493
4	18 14 44.14	2.5544	20 32 45.5	1.679	4	20 14 22.20	2.4036	19 16 55.8	4.608
5	18 17 17.37	2.5531	20 34 22.0	1.538	5	20 16 46.28	2.3991	19 12 15.9	4.721
6	18 19 50.51	2.5516	20 35 50.0	1.396	6	20 19 10.09	2.3944	19 7 29.3	4.833
7	18 22 23.56	2.5502	20 37 9.5	1.254	7	20 21 33.61	2.3898	19 2 36.0	4.943
8	18 24 56.53	2.5487	20 38 20.5	1.113	8	20 23 56.86	2.3852	18 57 36.1	5.053
9	18 27 29.40	2.5469	20 39 23.1	0.973	9	20 26 19.83	2.3805	18 52 29.6	5.163
10	18 30 2.16	2.5452	20 40 17.2	0.832	10	20 28 42.52	2.3758	18 47 16.5	5.272
11	18 32 34.82	2.5433	20 41 2.9	0.691	11	20 31 4.92	2.3710	18 41 57.0	5.378
12	18 35 7.36	2.5413	20 41 40.1	0.550	12	20 33 27.04	2.3663	18 36 31.1	5.484
13	18 37 39.78	2.5393	20 42 8.9	0.411	13	20 35 48.87	2.3614	18 30 58.9	5.589
14	18 40 12.08	2.5373	20 42 29.4	0.272	14	20 38 10.41	2.3566	18 25 20.4	5.694
15	18 42 44.25	2.5351	20 42 41.5	0.133	15	20 40 31.66	2.3518	18 19 35.6	5.798
16	18 45 16.29	2.5328	20 42 45.3	0.007	16	20 42 52.62	2.3469	18 13 44.7	5.899
17	18 47 48.19	2.5304	20 42 40.7	0.146	17	20 45 13.29	2.3421	18 7 47.7	6.000
18	18 50 19.94	2.5279	20 42 27.8	0.283	18	20 47 33.67	2.3373	18 1 44.7	6.100
19	18 52 51.54	2.5254	20 42 6.7	0.421	19	20 49 53.76	2.3323	17 55 35.7	6.199
20	18 55 22.99	2.5228	20 41 37.3	0.558	20	20 52 13.55	2.3274	17 49 20.8	6.297
21	18 57 54.28	2.5202	20 40 59.7	0.695	21	20 54 33.05	2.3225	17 43 0.1	6.394
22	19 0 25.41	2.5174	20 40 13.9	0.832	22	20 56 52.25	2.3176	17 36 33.5	6.491
23	19 2 56.37	2.5145	20 39 19.9	0.968	23	20 59 11.16	2.3127	17 30 1.2	6.585
24	19 5 27.15	2.5116	S. 20 38 17.8	1.103	24	21 1 29.77	2.3078	S. 17 23 23.3	6.678

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 25.					SATURDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	21 1 29.77	2.3078	S.17 23 23.3	6.678	0	22 46 47.14	2.0883	S.10 34 32.3	9.961
1	21 3 48.09	2.3028	17 16 39.8	6.772	1	22 48 52.32	2.0844	10 24 33.3	10.004
2	21 6 6.11	2.2978	17 9 50.7	6.863	2	22 50 57.27	2.0807	10 14 31.8	10.047
3	21 8 23.83	2.2929	17 2 56.2	6.954	3	22 53 2.00	2.0769	10 4 27.7	10.089
4	21 10 41.26	2.2880	16 55 56.2	7.044	4	22 55 6.50	2.0732	9 54 21.1	10.130
5	21 12 58.39	2.2831	16 48 50.9	7.133	5	22 57 10.78	2.0695	9 44 12.1	10.170
6	21 15 15.23	2.2782	16 41 40.3	7.220	6	22 59 14.84	2.0658	9 34 0.7	10.209
7	21 17 31.77	2.2732	16 34 24.5	7.307	7	23 1 18.68	2.0623	9 23 47.0	10.247
8	21 19 48.01	2.2683	16 27 3.5	7.393	8	23 3 22.31	2.0588	9 13 31.1	10.283
9	21 22 3.96	2.2633	16 19 37.4	7.478	9	23 5 25.73	2.0553	9 3 13.0	10.320
10	21 24 19.61	2.2584	16 12 6.2	7.561	10	23 7 28.94	2.0518	8 52 52.7	10.355
11	21 26 34.97	2.2536	16 4 30.1	7.643	11	23 9 31.94	2.0483	8 42 30.4	10.389
12	21 28 50.04	2.2487	15 56 49.1	7.723	12	23 11 34.74	2.0450	8 32 6.0	10.423
13	21 31 4.81	2.2438	15 49 3.3	7.803	13	23 13 37.34	2.0417	8 21 39.7	10.455
14	21 33 19.29	2.2389	15 41 12.7	7.883	14	23 15 39.74	2.0384	8 11 11.4	10.487
15	21 35 33.48	2.2341	15 33 17.4	7.961	15	23 17 41.95	2.0353	8 0 41.3	10.518
16	21 37 47.38	2.2293	15 25 17.4	8.038	16	23 19 43.97	2.0321	7 50 9.3	10.548
17	21 40 0.99	2.2244	15 17 12.8	8.114	17	23 21 45.80	2.0289	7 39 35.6	10.576
18	21 42 14.31	2.2196	15 9 3.7	8.189	18	23 23 47.44	2.0258	7 29 0.2	10.604
19	21 44 27.34	2.2148	15 0 50.1	8.263	19	23 25 48.89	2.0227	7 18 23.1	10.632
20	21 46 40.09	2.2101	14 52 32.1	8.336	20	23 27 50.16	2.0198	7 7 44.4	10.658
21	21 48 52.55	2.2053	14 44 9.8	8.408	21	23 29 51.26	2.0168	6 57 4.2	10.683
22	21 51 4.73	2.2006	14 35 43.2	8.478	22	23 31 52.18	2.0138	6 46 22.4	10.708
23	21 53 16.62	2.1958	S.14 27 12.4	8.548	23	23 33 52.92	2.0110	S. 6 35 39.3	10.731
	FRIDAY 26.					SUNDAY 28.			
0	21 55 28.23	2.1912	S.14 18 37.4	8.617	0	23 35 53.50	2.0083	S. 6 24 54.7	10.754
1	21 57 39.56	2.1866	14 9 58.4	8.684	1	23 37 53.91	2.0054	6 14 8.8	10.776
2	21 59 50.62	2.1820	14 1 15.3	8.751	2	23 39 54.15	2.0027	6 3 21.6	10.797
3	22 2 1.40	2.1774	13 52 28.3	8.817	3	23 41 54.23	2.0001	5 52 33.2	10.817
4	22 4 11.91	2.1728	13 43 37.3	8.882	4	23 43 54.16	1.9975	5 41 43.6	10.836
5	22 6 22.14	2.1683	13 34 42.5	8.945	5	23 45 53.93	1.9948	5 30 52.9	10.854
6	22 8 32.10	2.1638	13 25 43.9	9.008	6	23 47 53.54	1.9923	5 20 1.1	10.872
7	22 10 41.79	2.1593	13 16 41.6	9.068	7	23 49 53.00	1.9898	5 9 8.2	10.889
8	22 12 51.21	2.1548	13 7 35.7	9.128	8	23 51 52.32	1.9874	4 58 14.4	10.905
9	22 15 0.37	2.1504	12 58 26.2	9.188	9	23 53 51.49	1.9850	4 47 19.6	10.920
10	22 17 9.26	2.1460	12 49 13.1	9.247	10	23 55 50.52	1.9827	4 36 24.0	10.934
11	22 19 17.89	2.1417	12 39 56.6	9.304	11	23 57 49.41	1.9803	4 25 27.5	10.948
12	22 21 26.26	2.1373	12 30 36.6	9.361	12	23 59 48.16	1.9781	4 14 30.3	10.960
13	22 23 34.37	2.1330	12 21 13.3	9.416	13	0 1 46.78	1.9759	4 3 32.3	10.972
14	22 25 42.22	2.1288	12 11 46.7	9.471	14	0 3 45.27	1.9738	3 52 33.7	10.983
15	22 27 49.82	2.1246	12 2 16.8	9.524	15	0 5 43.63	1.9717	3 41 34.4	10.993
16	22 29 57.17	2.1203	11 52 43.8	9.577	16	0 7 41.87	1.9697	3 30 34.5	11.003
17	22 32 4.26	2.1162	11 43 7.6	9.628	17	0 9 39.99	1.9676	3 19 34.1	11.011
18	22 34 11.11	2.1122	11 33 28.4	9.678	18	0 11 37.98	1.9656	3 8 33.2	11.018
19	22 36 17.72	2.1081	11 23 46.2	9.728	19	0 13 35.86	1.9638	2 57 31.9	11.025
20	22 38 24.08	2.1040	11 14 1.1	9.776	20	0 15 33.63	1.9619	2 46 30.2	11.032
21	22 40 30.20	2.1000	11 4 13.1	9.824	21	0 17 31.29	1.9601	2 35 28.1	11.037
22	22 42 36.08	2.0961	10 54 22.2	9.871	22	0 19 28.84	1.9583	2 24 25.8	11.041
23	22 44 41.73	2.0922	10 44 28.6	9.916	23	0 21 26.28	1.9565	2 13 23.2	11.045
24	22 46 47.14	2.0883	S.10 34 32.3	9.961	24	0 23 23.62	1.9548	S. 2 2 20.4	11.048

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 29.			
	h m s	s	° ′ ″	″
0	0 23 23.62	1.9548	S. 2 2 20.4	11.048
1	0 25 20.86	1.9533	1 51 17.5	11.049
2	0 27 18.01	1.9517	1 40 14.5	11.051
3	0 29 15.06	1.9501	1 29 11.4	11.052
4	0 31 12.02	1.9486	1 18 8.3	11.052
5	0 33 8.89	1.9472	1 7 5.2	11.051
6	0 35 5.68	1.9458	0 56 2.2	11.048
7	0 37 2.39	1.9444	0 44 59.4	11.046
8	0 38 59.01	1.9431	0 33 56.7	11.043
9	0 40 55.56	1.9418	0 22 54.3	11.038
10	0 42 52.03	1.9406	0 11 52.1	11.034
11	0 44 48.43	1.9395	S. 0 0 50.2	11.028
12	0 46 44.77	1.9384	N. 0 10 11.3	11.022
13	0 48 41.04	1.9373	0 21 12.4	11.015
14	0 50 37.24	1.9363	0 32 13.1	11.007
15	0 52 33.39	1.9353	0 43 13.2	10.998
16	0 54 29.47	1.9343	0 54 12.8	10.989
17	0 56 25.50	1.9334	1 5 11.9	10.979
18	0 58 21.48	1.9326	1 16 10.3	10.968
19	1 0 17.41	1.9318	1 27 8.0	10.956
20	1 2 13.29	1.9309	1 38 5.0	10.943
21	1 4 9.12	1.9302	1 49 1.2	10.931
22	1 6 4.91	1.9296	1 59 56.7	10.917
23	1 8 0.67	1.9289	N. 2 10 51.2	10.902
	TUESDAY 30.			
0	1 9 56.38	1.9283	N. 2 21 44.9	10.887
1	1 11 52.06	1.9278	2 32 37.6	10.871
2	1 13 47.71	1.9273	2 43 29.4	10.854
3	1 15 43.33	1.9268	2 54 20.1	10.837
4	1 17 38.92	1.9263	3 5 9.8	10.819
5	1 19 34.49	1.9260	3 15 58.4	10.800
6	1 21 30.04	1.9257	3 26 45.8	10.780
7	1 23 25.57	1.9253	3 37 32.0	10.759
8	1 25 21.08	1.9250	3 48 16.9	10.738
9	1 27 16.57	1.9248	3 59 0.6	10.717
10	1 29 12.05	1.9246	4 9 43.0	10.695
11	1 31 7.52	1.9245	4 20 24.0	10.672
12	1 33 2.99	1.9244	4 31 3.6	10.648
13	1 34 58.45	1.9243	4 41 41.7	10.623
14	1 36 53.91	1.9243	4 52 18.4	10.598
15	1 38 49.36	1.9243	5 2 53.5	10.572
16	1 40 44.82	1.9244	5 13 27.0	10.545
17	1 42 40.29	1.9245	5 23 58.9	10.518
18	1 44 35.76	1.9246	5 34 29.2	10.490
19	1 46 31.24	1.9248	5 44 57.7	10.461
20	1 48 26.73	1.9249	5 55 24.5	10.432
21	1 50 22.23	1.9252	6 5 49.5	10.401
22	1 52 17.75	1.9254	6 16 12.6	10.370
23	1 54 13.28	1.9258	6 26 33.9	10.339
24	1 56 8.84	1.9262	N. 6 36 53.3	10.307

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 31.			
	h m s	s	° ′ ″	″
0	1 56 8.84	1.9262	N. 6 36 53.3	10.307
1	1 58 4.42	1.9266	6 47 10.7	10.274
2	2 0 0.03	1.9270	6 57 26.2	10.241
3	2 1 55.66	1.9274	7 7 39.6	10.207
4	2 3 51.32	1.9279	7 17 51.0	10.172
5	2 5 47.01	1.9284	7 28 0.2	10.136
6	2 7 42.73	1.9290	7 38 7.3	10.100
7	2 9 38.49	1.9296	7 48 12.2	10.063
8	2 11 34.28	1.9302	7 58 14.9	10.026
9	2 13 30.11	1.9308	8 8 15.3	9.988
10	2 15 25.98	1.9316	8 18 13.4	9.948
11	2 17 21.90	1.9323	8 28 9.1	9.908
12	2 19 17.86	1.9331	8 38 2.4	9.868
13	2 21 13.87	1.9338	8 47 53.3	9.828
14	2 23 9.92	1.9346	8 57 41.8	9.787
15	2 25 6.02	1.9354	9 7 27.7	9.744
16	2 27 2.17	1.9363	9 17 11.1	9.702
17	2 28 58.38	1.9373	9 26 51.9	9.658
18	2 30 54.64	1.9382	9 36 30.1	9.614
19	2 32 50.96	1.9391	9 46 5.6	9.569
20	2 34 47.33	1.9401	9 55 38.4	9.524
21	2 36 43.77	1.9412	10 5 8.5	9.478
22	2 38 40.27	1.9422	10 14 35.8	9.432
23	2 40 36.83	1.9433	N. 10 24 0.3	9.384
	THURSDAY NOVEMBER 1.			
0	2 42 33.46	1.9444	N. 10 33 21.9	9.336

PHASES OF THE MOON.

			d	h	m
○	Full Moon	Oct.	2	0	48.4
☾	Last Quarter		10	3	39.3
●	New Moon		17	10	42.7
☽	First Quarter		24	1	49.8
○	Full Moon		31	16	45.8

			d	h
☾	Apogee	Oct.	7	7.8
☾	Perigee		19	5.8

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.			P. L. of Diff.	III^{h}			P. L. of Diff.	VI^{h}			P. L. of Diff.	IX^{h}			P. L. of Diff.
			°	′	″		°	′	″		°	′	″		°	′	″	
1	Antares	W.	106	23	17	2776	107	58	17	2786	109	33	3	2797	111	7	35	2807
	a Aquilæ	W.	61	52	35	3448	63	13	58	3437	64	35	33	3427	65	57	20	3419
	SATURN	W.	15	32	21	2696	17	9	6	2705	18	45	39	2715	20	21	59	2724
	a Arietis	E.	43	9	5	3064	41	40	11	3096	40	11	56	3130	38	44	23	3168
	Aldebaran	E.	73	0	41	2717	71	24	24	2726	69	48	19	2735	68	12	26	2745
	JUPITER	E.	104	29	23	2750	102	53	50	2760	101	18	29	2769	99	43	20	2777
	Pollux	E.	116	54	41	2772	115	19	37	2780	113	44	43	2788	112	10	0	2796
2	*a* Aquilæ	W.	72	47	47	3401	74	10	2	3402	75	32	16	3403	76	54	29	3405
	Fomalhaut	W.	38	17	30	3479	39	38	18	3444	40	59	45	3414	42	21	46	3388
	SATURN	W.	28	20	36	2771	29	55	42	2780	31	30	36	2789	33	5	18	2798
	Aldebaran	E.	60	16	10	2792	58	41	32	2802	57	7	7	2811	55	32	54	2820
	JUPITER	E.	91	50	35	2825	90	16	40	2834	88	42	56	2843	87	9	24	2852
	Pollux	E.	104	19	6	2839	102	45	29	2848	101	12	3	2857	99	38	49	2866
3	*a* Aquilæ	W.	83	44	41	3427	85	6	27	3434	86	28	4	3441	87	49	34	3449
	Fomalhaut	W.	49	17	59	3306	50	42	4	3295	52	6	22	3287	53	30	50	3280
	SATURN	W.	40	55	43	2845	42	29	12	2855	44	2	29	2864	45	35	34	2873
	a Pegasi	W.	36	54	59	3989	38	6	49	3923	39	19	45	3866	40	33	40	3813
	Aldebaran	E.	47	44	51	2868	46	11	51	2877	44	39	3	2886	43	6	26	2895
	JUPITER	E.	79	24	45	2899	77	52	25	2908	76	20	17	2917	74	48	20	2926
	Pollux	E.	91	55	32	2911	90	23	28	2920	88	51	35	2929	87	19	53	2939
4	*a* Aquilæ	W.	94	34	35	3499	95	55	1	3510	97	15	14	3522	98	35	14	3535
	Fomalhaut	W.	60	34	37	3263	61	59	32	3262	63	24	28	3262	64	49	24	3262
	SATURN	W.	53	18	9	2916	54	50	7	2925	56	21	54	2933	57	53	31	2941
	a Pegasi	W.	46	54	37	3636	48	12	32	3612	49	30	53	3590	50	49	38	3572
	Aldebaran	E.	35	26	15	2940	33	54	47	2948	32	23	29	2957	30	52	22	2965
	JUPITER	E.	67	11	24	2970	65	40	34	2978	64	9	54	2986	62	39	24	2995
	Pollux	E.	79	44	19	2984	78	13	46	2993	76	43	24	3001	75	13	13	3009
	Regulus	E.	115	34	3	2939	114	2	33	2947	112	31	14	2955	111	0	5	2962
5	*a* Aquilæ	W.	105	11	30	3607	106	29	57	3624	107	48	5	3641	109	5	55	3659
	Fomalhaut	W.	71	53	47	3270	73	18	33	3273	74	43	16	3276	76	7	56	3279
	SATURN	W.	65	29	8	2979	66	59	47	2985	68	30	19	2992	70	0	42	2998
	a Pegasi	W.	57	27	47	3506	58	48	4	3497	60	8	32	3488	61	29	9	3481
	Aldebaran	E.	23	19	18	3005	21	49	11	3012	20	19	13	3019	18	49	24	3026
	JUPITER	E.	55	9	23	3032	53	39	50	3039	52	10	26	3046	50	41	10	3052
	Pollux	E.	67	44	57	3052	66	15	49	3060	64	46	50	3068	63	18	1	3076
	Regulus	E.	103	26	45	3000	101	56	33	3007	100	26	29	3014	98	56	33	3020
6	Fomalhaut	W.	83	10	22	3295	84	34	39	3298	85	58	53	3301	87	23	3	3304
	SATURN	W.	77	30	45	3026	79	0	26	3030	80	30	1	3034	81	59	31	3039
	a Pegasi	W.	68	13	52	3458	69	35	3	3454	70	56	18	3451	72	17	37	3448
	JUPITER	E.	43	16	43	3081	41	48	10	3087	40	19	44	3091	38	51	23	3095
	Pollux	E.	55	56	16	3113	54	28	22	3120	53	0	36	3127	51	32	59	3133
	Regulus	E.	91	28	45	3047	89	59	31	3052	88	30	23	3056	87	1	20	3060
	SUN	E.	135	1	56	3447	133	40	33	3452	132	19	16	3456	130	58	3	3459
7	Fomalhaut	W.	94	22	58	3320	95	46	46	3323	97	10	31	3326	98	34	13	3329
	SATURN	W.	89	25	56	3053	90	55	3	3055	92	24	8	3056	93	53	12	3057
	a Pegasi	W.	79	4	47	3439	80	26	19	3438	81	47	52	3437	83	9	27	3436

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Antares	W.	112 41 54	2818	114 15 59	2829	115 49 49	2840	117 23 25	2852
	α Aquilæ	W.	67 19 15	3414	68 41 16	3409	70 3 23	3405	71 25 34	3403
	Saturn	W.	21 58 7	2733	23 34 3	2743	25 9 46	2752	26 45 17	2761
	α Arietis	E.	37 17 35	3209	35 51 37	3256	34 26 34	3306	33 2 30	3361
	Aldebaran	E.	66 36 46	2754	65 1 18	2764	63 26 3	2773	61 51 0	2783
	Jupiter	E.	98 8 22	2786	96 33 36	2796	94 59 3	2806	93 24 43	2815
	Pollux	E.	110 35 27	2805	109 1 5	2814	107 26 55	2821	105 52 55	2830
2	α Aquilæ	W.	78 16 40	3408	79 38 47	3412	81 0 50	3416	82 22 48	3421
	Fomalhaut	W.	43 44 16	3365	45 7 12	3346	46 30 30	3330	47 54 7	3317
	Saturn	W.	34 39 48	2808	36 14 5	2818	37 48 10	2827	39 22 2	2836
	Aldebaran	E.	53 58 52	2830	52 25 3	2840	50 51 28	2849	49 18 4	2858
	Jupiter	E.	85 36 4	2862	84 2 57	2871	82 30 1	2880	80 57 17	2890
	Pollux	E.	98 5 46	2875	96 32 55	2884	95 0 16	2893	93 27 48	2902
3	α Aquilæ	W.	89 10 55	3458	90 32 6	3467	91 53 7	3477	93 13 57	3488
	Fomalhaut	W.	54 55 25	3275	56 20 6	3270	57 44 53	3267	59 9 44	3265
	Saturn	W.	47 8 28	2882	48 41 10	2891	50 13 41	2900	51 46 0	2908
	α Pegasi	W.	41 48 28	3769	43 4 2	3729	44 20 18	3694	45 37 11	3663
	Aldebaran	E.	41 34 1	2904	40 1 48	2913	38 29 46	2922	36 57 55	2931
	Jupiter	E.	73 16 34	2935	71 45 0	2944	70 13 37	2953	68 42 25	2962
	Pollux	E.	85 48 23	2948	84 17 5	2957	82 45 59	2966	81 15 3	2975
4	α Aquilæ	W.	99 54 59	3548	101 14 30	3562	102 33 46	3576	103 52 46	3591
	Fomalhaut	W.	66 14 20	3264	67 39 14	3265	69 4 7	3266	70 28 58	3268
	Saturn	W.	59 24 58	2949	60 56 15	2957	62 27 22	2964	63 58 20	2972
	α Pegasi	W.	52 8 43	3555	53 28 6	3540	54 47 46	3527	56 7 41	3516
	Aldebaran	E.	29 21 25	2973	27 50 39	2981	26 20 2	2989	24 49 35	2997
	Jupiter	E.	61 9 5	3003	59 38 56	3010	58 8 56	3018	56 39 5	3025
	Pollux	E.	73 43 12	3018	72 13 22	3028	70 43 44	3036	69 14 16	3044
	Regulus	E.	109 29 5	2970	107 58 16	2978	106 27 36	2986	104 57 6	2993
5	α Aquilæ	W.	110 23 26	3678	111 40 36	3698	112 57 26	3718	114 13 54	3738
	Fomalhaut	W.	77 32 32	3282	78 57 5	3285	80 21 34	3288	81 46 0	3291
	Saturn	W.	71 30 57	3004	73 1 4	3010	74 31 4	3015	76 0 58	3021
	α Pegasi	W.	62 49 54	3476	64 10 45	3471	65 31 42	3466	66 52 45	3462
	Aldebaran	E.	17 19 44	3034	15 50 13	3042	14 20 52	3050	12 51 41	3058
	Jupiter	E.	49 12 2	3059	47 43 2	3065	46 14 9	3070	44 45 23	3075
	Pollux	E.	61 49 22	3083	60 20 52	3091	58 52 31	3098	57 24 19	3106
	Regulus	E.	97 26 45	3026	95 57 5	3032	94 27 32	3037	92 58 5	3042
6	Fomalhaut	W.	88 47 10	3308	90 11 12	3311	91 35 11	3314	92 59 6	3317
	Saturn	W.	83 28 56	3042	84 58 16	3045	86 27 33	3048	87 56 46	3051
	α Pegasi	W.	73 38 59	3446	75 0 23	3445	76 21 49	3443	77 43 17	3441
	Jupiter	E.	37 23 6	3099	35 54 55	3102	34 26 48	3106	32 58 46	3109
	Pollux	E.	50 5 30	3140	48 38 9	3147	47 10 57	3154	45 43 52	3161
	Regulus	E.	85 32 21	3064	84 3 27	3067	82 34 37	3070	81 5 50	3072
	Sun	E.	129 36 53	3463	128 15 47	3466	126 54 45	3468	125 33 45	3470
7	Fomalhaut	W.	99 57 51	3332	101 21 26	3334	102 44 58	3337	104 8 27	3339
	Saturn	W.	95 22 14	3057	96 51 16	3058	98 20 17	3057	99 49 19	3056
	α Pegasi	W.	84 31 3	3434	85 52 41	3433	87 14 20	3432	88 36 1	3431

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LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
7	a Arietis	W.	35 31 22	3538	36 51 4	3509	38 11 18	3483	39 32 1	3459
	Jupiter	E.	31 30 47	3112	30 2 52	3114	28 35 0	3117	27 7 11	3119
	Pollux	E.	44 16 56	3168	42 50 8	3174	41 23 28	3182	39 56 57	3190
	Regulus	E.	79 37 7	3074	78 8 26	3076	76 39 48	3078	75 11 11	3078
	Sun	E.	124 12 47	3471	122 51 51	3473	121 30 57	3474	120 10 4	3474
8	Fomalhaut	W.	105 31 53	3342	106 55 16	3345	108 18 36	3347	109 41 53	3349
	Saturn	W.	101 18 22	3055	102 47 26	3053	104 16 33	3051	105 45 42	3048
	a Pegasi	W.	89 57 43	3430	91 19 26	3428	92 41 11	3426	94 2 58	3425
	a Arietis	W.	46 21 36	3366	47 44 31	3351	49 7 43	3337	50 31 12	3323
	Aldebaran	W.	12 23 44	3090	13 52 6	3085	15 20 34	3081	16 49 7	3077
	Regulus	E.	67 48 10	3076	66 19 32	3074	64 50 51	3072	63 22 8	3069
	Sun	E.	113 25 39	3471	112 4 42	3469	110 43 43	3466	109 22 41	3463
9	Saturn	W.	113 12 27	3029	114 42 4	3024	116 11 47	3018	117 41 38	3011
	a Pegasi	W.	100 52 13	3419	102 14 9	3418	103 36 5	3416	104 58 4	3415
	a Arietis	W.	57 32 24	3261	58 57 21	3248	60 22 33	3236	61 47 59	3225
	Aldebaran	W.	24 13 14	3052	25 42 22	3046	27 11 37	3040	28 41 0	3033
	Regulus	E.	55 57 32	3050	54 28 21	3044	52 59 3	3038	51 29 38	3032
	Sun	E.	102 36 31	3441	101 15 1	3435	99 53 24	3428	98 31 40	3421
10	a Arietis	W.	68 58 42	3164	70 25 34	3152	71 52 40	3139	73 20 2	3127
	Aldebaran	W.	36 10 9	2993	37 40 30	2984	39 11 2	2974	40 41 47	2964
	Regulus	E.	44 0 24	2994	42 30 4	2985	40 59 33	2975	39 28 49	2964
	Sun	E.	91 40 46	3379	90 18 6	3369	88 55 14	3358	87 32 10	3347
11	a Arietis	W.	80 40 48	3060	82 9 47	3046	83 39 2	3032	85 8 35	3018
	Aldebaran	W.	48 18 55	2907	49 51 5	2894	51 23 32	2880	52 56 16	2867
	Jupiter	W.	16 12 46	2964	17 43 44	2946	19 15 5	2928	20 46 48	2910
	Regulus	E.	31 51 49	2909	30 19 41	2897	28 47 18	2884	27 14 39	2871
	Sun	E.	80 33 31	3286	79 9 3	3273	77 44 20	3259	76 19 20	3244
12	a Arietis	W.	92 40 47	2945	94 12 9	2930	95 43 50	2915	97 15 50	2900
	Aldebaran	W.	60 44 24	2795	62 18 59	2779	63 53 55	2763	65 29 12	2747
	Jupiter	W.	28 30 53	2826	30 4 47	2809	31 39 3	2792	33 13 41	2775
	Sun	E.	69 9 57	3167	67 43 8	3150	66 16 0	3133	64 48 31	3117
13	a Arietis	W.	105 0 37	2825	106 34 32	2811	108 8 46	2797	109 43 18	2783
	Aldebaran	W.	73 31 2	2663	75 8 32	2646	76 46 25	2628	78 24 42	2610
	Jupiter	W.	41 12 36	2687	42 49 34	2669	44 26 56	2651	46 4 42	2632
	Sun	E.	57 25 55	3030	55 56 19	3011	54 26 20	2993	52 55 59	2975
14	Aldebaran	W.	86 42 12	2521	88 22 56	2503	90 4 5	2485	91 45 39	2468
	Jupiter	W.	54 19 45	2541	56 0 1	2523	57 40 42	2505	59 21 48	2487
	Sun	E.	45 18 33	2886	43 45 56	2869	42 12 57	2852	40 39 36	2835
19	Sun	W.	22 7 25	2474	23 49 15	2462	25 31 21	2453	27 13 41	2445
	Fomalhaut	E.	106 28 55	2333	104 43 44	2329	102 58 26	2326	101 13 4	2324
	Saturn	E.	112 6 47	2058	110 14 43	2059	108 22 40	2060	106 30 38	2061
20	Sun	W.	35 47 4	2435	37 29 49	2437	39 12 31	2439	40 55 10	2443
	Fomalhaut	E.	92 26 5	2331	90 40 51	2336	88 55 44	2342	87 10 45	2348

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Day of the Month.	Name and Direction of Object.		Midnight.			P. L. of Diff.	XV^{h}			P. L. of Diff.	XVIII^{h}			P. L. of Diff.	XXI^{h}			P. L. of Diff.
			°	′	″		°	′	″		°	′	″		°	′	″	
7	*a* Arietis	W.	40	53	11	3438	42	14	45	3417	43	36	42	3400	44	58	59	3382
	JUPITER	E.	25	39	25	3121	24	11	41	3124	22	44	0	3126	21	16	22	3129
	Pollux	E.	38	30	36	3198	37	4	24	3206	35	38	22	3215	34	12	31	3225
	Regulus	E.	73	42	34	3078	72	13	58	3079	70	45	23	3078	69	16	47	3078
	SUN	E.	118	49	11	3475	117	28	19	3475	116	7	27	3474	114	46	34	3472
8	Fomalhaut	W.	111	5	8	3352	112	28	20	3355	113	51	28	3357	115	14	33	3358
	SATURN	W.	107	14	55	3046	108	44	11	3043	110	13	31	3039	111	42	56	3034
	a Pegasi	W.	95	24	46	3423	96	46	36	3422	98	8	26	3421	99	30	19	3420
	a Arietis	W.	51	54	57	3310	53	18	57	3298	54	43	11	3285	56	7	40	3273
	Aldebaran	W.	18	17	46	3073	19	46	29	3068	21	15	18	3063	22	44	13	3058
	Regulus	E.	61	53	21	3067	60	24	31	3063	58	55	37	3059	57	26	37	3055
	SUN	E.	108	1	36	3460	106	40	27	3456	105	19	14	3451	103	57	55	3446
9	SATURN	W.	119	11	37	3005	120	41	44	2998	122	11	59	2990	123	42	24	2982
	a Pegasi	W.	106	20	3	3415	107	42	3	3415	109	4	3	3413	110	26	5	3412
	a Arietis	W.	63	13	39	3213	64	39	33	3201	66	5	41	3188	67	32	4	3176
	Aldebaran	W.	30	10	31	3026	31	40	11	3019	33	10	0	3011	34	39	59	3002
	Regulus	E.	50	0	5	3026	48	30	24	3018	47	0	34	3010	45	30	34	3002
	SUN	E.	97	9	47	3414	95	47	46	3406	94	25	36	3397	93	3	16	3388
10	*a* Arietis	W.	74	47	39	3114	76	15	32	3101	77	43	41	3087	79	12	6	3073
	Aldebaran	W.	42	12	45	2953	43	43	56	2942	45	15	21	2931	46	47	0	2919
	Regulus	E.	37	57	51	2954	36	26	41	2944	34	55	18	2933	33	23	41	2921
	SUN	E.	86	8	54	3336	84	45	24	3325	83	21	41	3312	81	57	43	3299
11	*a* Arietis	W.	86	38	25	3004	88	8	33	2989	89	38	59	2974	91	9	44	2960
	Aldebaran	W.	54	29	17	2853	56	2	36	2839	57	36	13	2825	59	10	9	2810
	JUPITER	W.	22	18	54	2893	23	51	22	2877	25	24	10	2860	26	57	21	2843
	Regulus	E.	25	41	43	2858	24	8	30	2845	22	35	0	2831	21	1	12	2817
	SUN	E.	74	54	3	3229	73	28	29	3214	72	2	37	3198	70	36	26	3183
12	*a* Arietis	W.	98	48	9	2884	100	20	48	2870	101	53	45	2855	103	27	2	2840
	Aldebaran	W.	67	4	50	2730	68	40	49	2713	70	17	11	2697	71	53	55	2680
	JUPITER	W.	34	48	42	2758	36	24	6	2740	37	59	52	2722	39	36	2	2704
	SUN	E.	63	20	42	3100	61	52	32	3083	60	24	2	3065	58	55	9	3047
13	*a* Arietis	W.	111	18	9	2769	112	53	17	2755	114	28	44	2742	116	4	29	2729
	Aldebaran	W.	80	3	24	2592	81	42	29	2574	83	21	59	2557	85	1	53	2539
	JUPITER	W.	47	42	53	2614	49	21	29	2596	51	0	29	2578	52	39	54	2559
	SUN	E.	51	25	15	2957	49	54	8	2939	48	22	39	2921	46	50	47	2904
14	Aldebaran	W.	93	27	37	2450	95	10	0	2433	96	52	48	2415	98	36	1	2398
	JUPITER	W.	61	3	20	2469	62	45	17	2451	64	27	39	2433	66	10	26	2415
	SUN	E.	39	5	54	2818	37	31	50	2803	35	57	26	2788	34	22	42	2773
19	SUN	W.	28	56	11	2440	30	38	49	2436	32	21	32	2435	34	4	17	2433
	Fomalhaut	E.	99	27	40	2323	97	42	14	2324	95	56	49	2325	94	11	25	2327
	SATURN	E.	104	38	39	2063	102	46	43	2065	100	54	50	2068	99	3	2	2072
20	SUN	W.	42	37	43	2448	44	20	9	2454	46	2	27	2460	47	44	37	2467
	Fomalhaut	E.	85	25	55	2356	83	41	16	2364	81	56	50	2373	80	12	37	2384

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			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
20	Saturn	E.	97 11 20	2077	95 19 45	2082	93 28 18	2087	91 36 59	2092
21	Sun	W.	49 26 37	2475	51 8 26	2482	52 50 4	2491	54 31 31	2500
	Fomalhaut	E.	78 28 40	2396	76 45 0	2408	75 1 37	2422	73 18 33	2436
	Saturn	E.	82 22 55	2130	80 32 42	2139	78 42 42	2148	76 52 55	2157
22	Sun	W.	62 55 19	2552	64 35 20	2563	66 15 5	2575	67 54 35	2587
	Fomalhaut	E.	64 48 48	2524	63 8 7	2545	61 27 56	2567	59 48 16	2590
	Saturn	E.	67 47 44	2209	65 59 30	2220	64 11 32	2231	62 23 50	2243
23	Sun	W.	76 7 50	2650	77 45 37	2663	79 23 6	2676	81 0 17	2689
	Antares	W.	37 22 59	2453	39 5 19	2456	40 47 35	2460	42 29 46	2464
	Saturn	E.	53 29 47	2303	51 43 52	2315	49 58 15	2328	48 12 56	2340
	α Arietis	E.	110 21 39	2483	108 40 2	2492	106 58 38	2502	105 17 27	2512
24	Sun	W.	89 1 48	2757	90 37 12	2770	92 12 19	2784	93 47 8	2798
	Antares	W.	50 58 40	2499	52 39 55	2507	54 20 58	2516	56 1 49	2525
	Saturn	E.	39 30 53	2403	37 47 23	2416	36 4 11	2428	34 21 16	2441
	α Arietis	E.	96 55 5	2566	95 15 23	2577	93 35 56	2589	91 56 45	2601
25	Sun	W.	101 36 50	2864	103 9 55	2877	104 42 43	2890	106 15 15	2903
	Antares	W.	64 22 44	2575	66 2 13	2585	67 41 28	2595	69 20 30	2606
	Saturn	E.	25 51 5	2502	24 9 54	2514	22 29 1	2526	20 48 24	2538
	α Arietis	E.	83 45 5	2664	82 7 36	2677	80 30 25	2690	78 53 32	2704
	Aldebaran	E.	115 32 5	2512	113 51 8	2524	112 10 28	2535	110 30 4	2547
26	Sun	W.	113 53 50	2966	115 24 45	2978	116 55 25	2991	118 25 49	3003
	Antares	W.	77 32 6	2657	79 9 43	2668	80 47 6	2678	82 24 15	2688
	α Arietis	E.	70 53 41	2774	69 18 39	2788	67 43 55	2803	66 9 31	2818
	Aldebaran	E.	102 12 3	2604	100 33 13	2615	98 54 38	2625	97 16 17	2636
27	Antares	W.	90 26 40	2738	92 2 29	2748	93 38 5	2758	95 13 28	2768
	α Arietis	E.	58 22 37	2900	56 50 18	2918	55 18 21	2936	53 46 48	2955
	Aldebaran	E.	89 8 6	2687	87 31 8	2697	85 54 24	2707	84 17 53	2716
28	Antares	W.	103 7 11	2816	104 41 18	2826	106 15 12	2835	107 48 54	2845
	α Aquilæ	W.	59 10 52	3553	60 30 18	3537	61 50 2	3523	63 10 1	3511
	Saturn	W.	13 29 7	2754	15 4 35	2763	16 39 51	2771	18 14 56	2779
	α Arietis	E.	46 15 26	3066	44 46 35	3092	43 18 16	3120	41 50 31	3151
	Aldebaran	E.	76 18 22	2762	74 43 4	2770	73 7 57	2779	71 33 1	2788
29	*α* Aquilæ	W.	69 52 40	3473	71 13 34	3469	72 34 33	3466	73 55 35	3464
	Saturn	W.	26 7 43	2820	27 41 45	2828	29 15 36	2836	30 49 17	2843
	Aldebaran	E.	63 41 10	2829	62 7 20	2837	60 33 40	2845	59 0 10	2852
30	*α* Aquilæ	W.	80 40 57	3467	82 1 58	3470	83 22 56	3474	84 43 49	3478
	Saturn	W.	38 35 19	2880	40 8 3	2888	41 40 37	2894	43 13 3	2901
	Aldebaran	E.	51 15 5	2890	49 42 33	2897	48 10 10	2904	46 37 56	2911
31	*α* Aquilæ	W.	91 26 51	3509	92 47 5	3517	94 7 11	3525	95 27 7	3535
	Saturn	W.	50 53 0	2935	52 24 34	2942	53 55 59	2948	55 27 17	2954
	Aldebaran	E.	38 58 59	2945	37 27 37	2952	35 56 24	2958	34 25 19	2965

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		° ′ ″		° ′ ″		° ′ ″		° ′ ″	
20	SATURN E.	89 45 48	2099	87 54 48	2107	86 3 59	2114	84 13 21	2122
21	SUN W.	56 12 45	2510	57 53 44	2520	59 34 30	2530	61 15 2	2540
	Fomalhaut E.	71 35 49	2451	69 53 27	2468	68 11 29	2486	66 29 56	2504
	SATURN E.	75 3 22	2167	73 14 4	2177	71 25 2	2187	69 36 15	2198
22	SUN W.	69 33 48	2599	71 12 44	2612	72 51 23	2624	74 29 45	2637
	Fomalhaut E.	58 9 7	2615	56 30 33	2642	54 52 35	2671	53 15 15	2701
	SATURN E.	60 36 26	2255	58 49 20	2267	57 2 31	2279	55 16 0	2291
23	SUN W.	82 37 11	2702	84 13 47	2716	85 50 5	2730	87 26 5	2743
	Antares W.	44 11 51	2469	45 53 48	2475	47 35 35	2482	49 17 13	2490
	SATURN E.	46 27 55	2353	44 43 12	2366	42 58 48	2378	41 14 41	2391
	a Arietis E.	103 36 30	2522	101 55 47	2532	100 15 18	2543	98 35 4	2554
24	SUN W.	95 21 39	2811	96 55 53	2825	98 29 49	2838	100 3 28	2851
	Antares W.	57 42 27	2535	59 22 51	2545	61 3 2	2554	62 43 0	2564
	SATURN E.	32 38 39	2453	30 56 20	2465	29 14 18	2477	27 32 33	2489
	a Arietis E.	90 17 51	2613	88 39 14	2626	87 0 54	2638	85 22 51	2651
25	SUN W.	107 47 31	2916	109 19 30	2929	110 51 12	2941	112 22 39	2954
	Antares W.	70 59 17	2616	72 37 50	2626	74 16 9	2637	75 54 15	2647
	SATURN E.	19 8 3	2550	17 27 59	2562	15 48 12	2574	14 8 41	2585
	a Arietis E.	77 16 57	2718	75 40 40	2732	74 4 42	2746	72 29 2	2760
	Aldebaran E.	108 49 56	2559	107 10 5	2570	105 30 29	2581	103 51 8	2593
26	SUN W.	119 55 58	3015	121 25 52	3028	122 55 30	3040	124 24 53	3051
	Antares W.	84 1 11	2698	85 37 53	2708	87 14 22	2718	88 50 38	2728
	a Arietis E.	64 35 27	2834	63 1 43	2850	61 28 20	2866	59 55 18	2883
	Aldebaran E.	95 38 11	2646	94 0 19	2657	92 22 41	2667	90 45 17	2677
27	Antares W.	96 48 38	2778	98 23 35	2787	99 58 20	2797	101 32 52	2807
	a Arietis E.	52 15 39	2975	50 44 55	2996	49 14 37	3018	47 44 47	3042
	Aldebaran E.	82 41 34	2725	81 5 28	2735	79 29 34	2744	77 53 52	2753
28	Antares W.	109 22 24	2854	110 55 42	2864	112 28 47	2873	114 1 40	2883
	a Aquilæ W.	64 30 13	3501	65 50 36	3492	67 11 9	3484	68 31 51	3478
	SATURN W.	19 49 51	2788	21 24 35	2796	22 59 8	2804	24 33 31	2812
	a Arietis E.	40 23 23	3184	38 56 54	3219	37 31 7	3258	36 6 7	3300
	Aldebaran E.	69 58 17	2796	68 23 44	2805	66 49 22	2813	65 15 11	2821
29	*a* Aquilæ W.	75 16 39	3463	76 37 44	3463	77 58 49	3464	79 19 54	3465
	SATURN W.	32 22 49	2851	33 56 11	2859	35 29 23	2866	37 2 26	2873
	Aldebaran E.	57 26 49	2860	55 53 39	2867	54 20 38	2875	52 47 47	2882
30	*a* Aquilæ W.	86 4 38	3483	87 25 21	3488	88 45 58	3495	90 6 28	3501
	SATURN W.	44 45 20	2909	46 17 28	2916	47 49 27	2922	49 21 18	2929
	Aldebaran E.	45 5 51	2918	43 33 55	2925	42 2 8	2932	40 30 29	2939
31	*a* Aquilæ W.	96 46 53	3545	98 6 28	3555	99 25 52	3566	100 45 3	3578
	SATURN W.	56 58 27	2961	58 29 29	2967	60 0 23	2973	61 31 10	2978
	Aldebaran E.	32 54 22	2971	31 23 33	2977	29 52 52	2983	28 22 19	2989

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Thur.	1	14 23 6.04	9.771	S. 14 13 46.9	−48.45	16 9.06	66.83	16 18.36	0.086
Frid.	2	14 27 0.92	9.804	14 33 2.9	47.88	16 9.31	66.94	16 20.03	0.053
Sat.	3	14 30 56.61	9.838	14 52 4.9	47.28	16 9.56	67.05	16 20.90	0.019
SUN.	4	14 34 53.11	9.873	15 10 52.4	−46.67	16 9.80	67.17	16 20.94	0.015
Mon.	5	14 38 50.45	9.908	15 29 25.0	46.04	16 10.04	67.29	16 20.17	0.050
Tues.	6	14 42 48.63	9.943	15 47 42.4	45.39	16 10.28	67.41	16 18.55	0.085
Wed.	7	14 46 47.65	9.978	16 5 44.1	−44.74	16 10.51	67.53	16 16.09	0.120
Thur.	8	14 50 47.53	10.014	16 23 29.7	44.07	16 10.74	67.65	16 12.77	0.156
Frid.	9	14 54 48.27	10.050	16 40 59.0	43.37	16 10.96	67.77	16 8.59	0.192
Sat.	10	14 58 49.88	10.086	16 58 11.2	−42.66	16 11.18	67.88	16 3.55	0.228
SUN.	11	15 2 52.36	10.122	17 15 6.4	41.93	16 11.40	68.00	15 57.64	0.264
Mon.	12	15 6 55.70	10.158	17 31 43.8	41.18	16 11.62	68.12	15 50.88	0.300
Tues.	13	15 10 59.91	10.194	17 48 3.2	−40.42	16 11.84	68.24	15 43.25	0.336
Wed.	14	15 15 4.98	10.230	18 4 4.1	39.64	16 12.06	68.36	15 34.75	0.372
Thur.	15	15 19 10.93	10.267	18 19 46.1	38.85	16 12.28	68.48	15 25.39	0.408
Frid.	16	15 23 17.72	10.302	18 35 8.8	−38.04	16 12.49	68.60	15 15.18	0.443
Sat.	17	15 27 25.37	10.337	18 50 11.9	37.20	16 12.70	68.72	15 4.12	0.478
SUN.	18	15 31 33.83	10.371	19 4 54.7	36.35	16 12.91	68.84	14 52.25	0.512
Mon.	19	15 35 43.12	10.405	19 19 17.2	−35.49	16 13.12	68.95	14 39.53	0.546
Tues.	20	15 39 53.23	10.439	19 33 18.6	34.61	16 13.32	69.06	14 26.02	0.580
Wed.	21	15 44 4.14	10.472	19 46 58.7	33.72	16 13.52	69.18	14 11.70	0.613
Thur.	22	15 48 15.85	10.504	20 0 17.1	−32.81	16 13.72	69.29	13 56.59	0.646
Frid.	23	15 52 28.33	10.536	20 13 13.6	31.88	16 13.91	69.40	13 40.72	0.679
Sat.	24	15 56 41.58	10.568	20 25 47.7	30.94	16 14.10	69.51	13 24.06	0.710
SUN.	25	16 0 55.60	10.601	20 37 59.0	−29.99	16 14.29	69.62	13 6.65	0.741
Mon.	26	16 5 10.35	10.632	20 49 47.3	29.02	16 14.47	69.72	12 48.50	0.772
Tues.	27	16 9 25.85	10.662	21 1 12.0	28.03	16 14.65	69.82	12 29.61	0.802
Wed.	28	16 13 42.06	10.691	21 12 13.0	−27.03	16 14.82	69.92	12 10.01	0.831
Thur.	29	16 17 58.99	10.720	21 22 50.1	26.03	16 14.99	70.02	11 49.70	0.860
Frid.	30	16 22 16.62	10.749	21 33 2.9	25.01	16 15.15	70.11	11 28.68	0.889
Sat.	31	16 26 34.92	10.777	S. 21 42 51.0	−23.98	16 15.30	70.20	11 7.01	0.917

NOTE.—The mean time of semidiameter passing the meridian may be found by subtracting 0s.19 from the sidereal time.
The sign — prefixed to the hourly change of declination indicates that south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ′ ″	″	m s	s	h m s
Thur.	1	14 23 8.70	9.771	S. 14 14 0.1	−48.45	16 18.38	0.086	14 39 27.08
Frid.	2	14 27 3.59	9.804	14 33 16.0	47.87	16 20.04	0.053	14 43 23.63
Sat.	3	14 30 59.29	9.838	14 52 17.8	47.27	16 20.90	0.019	14 47 20.19
SUN.	4	14 34 55.80	9.872	15 11 5.2	−46.66	16 20.94	0.015	14 51 16.74
Mon.	5	14 38 53.15	9.907	15 29 37.6	46.03	16 20.15	0.050	14 55 13.30
Tues.	6	14 42 51.33	9.942	15 47 54.8	45.38	16 18.52	0.085	14 59 9.85
Wed.	7	14 46 50.36	9.977	16 5 56.3	−44.73	16 16.05	0.120	15 3 6.41
Thur.	8	14 50 50.24	10.013	16 23 41.7	44.06	16 12.72	0.156	15 7 2.96
Frid.	9	14 54 50.98	10.049	16 41 10.7	43.36	16 8.54	0.192	15 10 59.52
Sat.	10	14 58 52.58	10.085	16 58 22.7	−42.65	16 3.49	0.228	15 14 56.07
SUN.	11	15 2 55.05	10.121	17 15 17.6	41.92	15 57.57	0.264	15 18 52.62
Mon.	12	15 6 58.38	10.157	17 31 54.7	41.17	15 50.80	0.300	15 22 49.18
Tues.	13	15 11 2.58	10.193	17 48 13.8	−40.41	15 43.16	0.336	15 26 45.74
Wed.	14	15 15 7.64	10.229	18 4 14.4	39.63	15 34.65	0.372	15 30 42.29
Thur.	15	15 19 13.57	10.265	18 19 56.1	38.84	15 25.28	0.408	15 34 38.85
Frid.	16	15 23 20.34	10.300	18 35 18.5	−38.03	15 15.06	0.443	15 38 35.40
Sat.	17	15 27 27.96	10.335	18 50 21.2	37.19	15 4.00	0.478	15 42 31.96
SUN.	18	15 31 36.40	10.369	19 5 3.7	36.34	14 52.12	0.512	15 46 28.52
Mon.	19	15 35 45.67	10.403	19 19 25.8	−35.48	14 39.41	0.546	15 50 25.07
Tues.	20	15 39 55.75	10.437	19 33 26.9	34.60	14 25.88	0.580	15 54 21.63
Wed.	21	15 44 6.63	10.470	19 47 6.7	33.71	14 11.55	0.613	15 58 18.18
Thur.	22	15 48 18.30	10.502	20 0 24.8	−32.80	13 56.44	0.646	16 2 14.74
Frid.	23	15 52 30.74	10.534	20 13 20.9	31.87	13 40.56	0.679	16 6 11.30
Sat.	24	15 56 43.95	10.566	20 25 54.6	30.93	13 23.90	0.710	16 10 7.85
SUN.	25	16 0 57.92	10.598	20 38 5.5	−29.98	13 6.49	0.741	16 14 4.41
Mon.	26	16 5 12.63	10.629	20 49 53.4	29.01	12 48.33	0.772	16 18 0.96
Tues.	27	16 9 28.08	10.659	21 1 17.8	28.02	12 29.44	0.802	16 21 57.52
Wed.	28	16 13 44.24	10.688	21 12 18.6	−27.02	12 9.84	0.831	16 25 54.08
Thur.	29	16 18 1.11	10.717	21 22 55.2	26.02	11 49.53	0.860	16 29 50.64
Frid.	30	16 22 18.68	10.746	21 33 7.6	25.00	11 28.52	0.889	16 33 47.19
Sat.	31	16 26 36.91	10.774	S. 21 42 55.4	−23.97	11 6.84	0.917	16 37 43.75

Note.—The semidiameter for mean noon may be assumed the same as that for apparent noon. The sign − prefixed to the hourly change of declination indicates that south declinations are increasing.

Diff. for 1 Hour,
+ 9^{s}.8565.
(Table III.)

AT GREENWICH MEAN NOON.								
		THE SUN'S						
Day of the Month.	Day of the Year.	TRUE LONGITUDE. λ	TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	305	218 9 52.1	9 25.5	150.09	— 0.75	9.996 5992	- 46.8	9 19 1.09
2	306	219 9 55.3	9 28.6	150.17	0.72	9.996 4876	46.2	9 15 5.18
3	307	220 10 0.4	9 33.6	150.25	0.67	9.996 3775	45.6	9 11 9.27
4	308	221 10 7.5	9 40.6	150.34	— 0.60	9.996 2689	- 44.9	9 7 13.36
5	309	222 10 16.5	9 49.5	150.42	0.50	9.996 1618	44.3	9 3 17.46
6	310	223 10 27.6	10 0.4	150.50	0.38	9.996 0562	43.7	8 59 21.55
7	311	224 10 40.6	10 13.3	150.59	— 0.26	9.995 9520	- 43.1	8 55 25.64
8	312	225 10 55.7	10 28.3	150.67	— 0.13	9.995 8492	42.5	8 51 29.73
9	313	226 11 12.8	10 45.3	150.75	0.00	9.995 7477	42.0	8 47 33.82
10	314	227 11 31.9	11 4.2	150.84	+ 0.12	9.995 6474	- 41.5	8 43 37.91
11	315	228 11 53.0	11 25.2	150.92	0.23	9.995 5483	41.1	8 39 42.00
12	316	229 12 16.0	11 48.1	151.00	0.32	9.995 4502	40.7	8 35 46.09
13	317	230 12 41.0	12 13.0	151.08	+ 0.38	9.995 3530	- 40.3	8 31 50.18
14	318	231 13 7.8	12 39.6	151.15	0.42	9.995 2567	39.9	8 27 54.27
15	319	232 13 36.4	13 8.0	151.22	0.43	9.995 1612	39.6	8 23 58.36
16	320	233 14 6.7	13 38.2	151.29	+ 0.41	9.995 0665	- 39.3	8 20 2.45
17	321	234 14 38.5	14 9.9	151.36	0.36	9.994 9726	39.0	8 16 6.54
18	322	235 15 11.8	14 43.0	151.42	0.28	9.994 8794	38.6	8 12 10.63
19	323	236 15 46.4	15 17.5	151.47	+ 0.17	9.994 7872	- 38.2	8 8 14.72
20	324	237 16 22.4	15 53.3	151.52	+ 0.05	9.994 6960	37.7	8 4 18.81
21	325	238 16 59.5	16 30.3	151.57	— 0.07	9.994 6060	37.2	8 0 22.90
22	326	239 17 37.8	17 8.4	151.62	— 0.19	9.994 5175	- 36.6	7 56 26.99
23	327	240 18 17.2	17 47.6	151.66	0.31	9.994 4305	35.9	7 52 31.08
24	328	241 18 57.7	18 28.0	151.71	0.41	9.994 3452	35.1	7 48 35.17
25	329	242 19 39.3	19 9.4	151.76	— 0.48	9.994 2618	- 34.3	7 44 39.26
26	330	243 20 22.0	19 52.0	151.80	0.54	9.994 1804	33.5	7 40 43.35
27	331	244 21 5.8	20 35.6	151.85	0.58	9.994 1011	32.6	7 36 47.44
28	332	245 21 50.7	21 20.4	151.90	— 0.58	9.994 0241	- 31.7	7 32 51.53
29	333	246 22 36.7	22 6.3	151.94	0.55	9.993 9493	30.7	7 28 55.62
30	334	247 23 23.9	22 53.3	151.99	0.50	9.993 8769	29.7	7 24 59.71
31	335	248 24 12.3	23 41.5	152.04	— 0.43	9.993 8069	- 28.7	7 21 3.80

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ' are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour,
— 9ˢ.8296.
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	14 51.9	14 49.7	54 27.3	− 0.69	54 19.5	− 0.60	12 25.3	1.85	14.6
2	14 47.9	14 46.5	54 12.9	0.50	54 7.5	0.39	13 10.2	1.89	15.6
3	14 45.4	14 44.7	54 3.5	− 0.27	54 1.0	− 0.14	13 56.2	1.94	16.6
4	14 44.5	14 44.8	54 0.2	0.00	54 1.1	+ 0.15	14 43.3	1.98	17.6
5	14 45.5	14 46.8	54 3.9	+ 0.32	54 8.8	0.50	15 31.3	2.01	18.6
6	14 48.7	14 51.2	54 15.8	0.68	54 25.1	0.87	16 19.8	2.03	19.6
7	14 54.4	14 58.2	54 36.7	+ 1.06	54 50.7	+ 1.26	17 8.5	2.03	20.6
8	15 2.7	15 7.8	55 7.1	1.46	55 25.9	1.65	17 57.2	2.03	21.6
9	15 13.6	15 19.9	55 46.9	1.84	56 10.1	2.01	18 45.8	2.02	22.6
10	15 26.7	15 34.0	56 35.2	+ 2.16	57 2.0	+ 2.29	19 34.4	2.03	23.6
11	15 41.7	15 49.6	57 30.0	2.38	57 58.9	2.43	20 23.4	2.06	24.6
12	15 57.5	16 5.4	58 28.2	2.43	58 57.1	2.38	21 13.6	2.13	25.6
13	16 13.0	16 20.2	59 25.2	+ 2.27	59 51.5	+ 2.11	22 5.6	2.22	26.6
14	16 26.7	16 32.4	60 15.5	1.88	60 36.4	1.59	23 0.1	2.34	27.6
15	16 37.1	16 40.6	60 53.5	1.25	61 6.3	0.88	23 57.6	2.46	28.6
16	16 42.8	16 43.7	61 14.5	+ 0.48	61 17.7	+ 0.06	☌	. .	0.1
17	16 43.2	16 41.4	61 15.9	− 0.35	61 9.3	− 0.74	0 57.9	2.55	1.1
18	16 38.4	16 34.2	60 58.2	1.10	60 43.0	1.42	2 0.0	2.59	2.1
19	16 29.1	16 23.2	60 24.3	− 1.68	60 2.7	− 1.89	3 2.1	2.56	3.1
20	16 16.8	16 9.9	59 39.0	2.05	59 13.8	2.15	4 2.4	2.45	4.1
21	16 2.8	15 55.7	58 47.8	2.19	58 21.4	2.19	4 59.4	2.30	5.1
22	15 48.6	15 41.6	57 55.3	− 2.15	57 29.8	− 2.08	5 52.5	2.14	6.1
23	15 34.9	15 28.6	57 5.3	1.99	56 42.1	1.88	6 42.1	2.00	7.1
24	15 22.6	15 17.1	56 20.2	1.76	56 0.0	1.62	7 28.8	1.90	8.1
25	15 12.0	15 7.4	55 41.3	− 1.48	55 24.4	− 1.35	8 13.3	1.83	9.1
26	15 3.2	14 59.5	55 9.1	1.21	54 55.4	1.08	8 56.7	1.80	10.1
27	14 56.2	14 53.3	54 43.3	0.95	54 32.8	0.82	9 39.7	1.80	11.1
28	14 50.9	14 48.8	54 23.7	− 0.70	54 15.9	− 0.59	10 23.2	1.83	12.1
29	14 47.0	14 45.6	54 9.6	0.48	54 4.5	0.37	11 7.5	1.87	13.1
30	14 44.6	14 43.9	54 0.7	0.27	53 58.1	− 0.16	11 53.0	1.92	14.1
31	14 43.5	14 43.5	53 56.8	− 0.05	53 56.7	+ 0.05	12 39.7	1.97	15.1

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 1.					SATURDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	2 42 33.46	1.9444	N.10 33 21.9	9.336	0	4 17 32.42	2.0186	N.16 54 57.5	6.346
1	2 44 30.16	1.9455	10 42 40.6	9.288	1	4 19 33.59	2.0204	17 1 16.0	6.270
2	2 46 26.92	1.9466	10 51 56.5	9.239	2	4 21 34.87	2.0222	17 7 29.9	6.193
3	2 48 23.75	1.9478	11 1 9.3	9.189	3	4 23 36.25	2.0239	17 13 39.2	6.117
4	2 50 20.65	1.9490	11 10 19.2	9.139	4	4 25 37.74	2.0258	17 19 43.9	6.040
5	2 52 17.63	1.9503	11 19 26.0	9.088	5	4 27 39.34	2.0276	17 25 44.0	5.963
6	2 54 14.68	1.9515	11 28 29.7	9.036	6	4 29 41.05	2.0293	17 31 39.4	5.885
7	2 56 11.81	1.9528	11 37 30.3	8.983	7	4 31 42.86	2.0310	17 37 30.2	5.807
8	2 58 9.02	1.9541	11 46 27.7	8.931	8	4 33 44.77	2.0328	17 43 16.2	5.727
9	3 0 6.30	1.9553	11 55 22.0	8.878	9	4 35 46.79	2.0346	17 48 57.4	5.648
10	3 2 3.66	1.9567	12 4 13.0	8.823	10	4 37 48.92	2.0364	17 54 33.9	5.568
11	3 4 1.10	1.9581	12 13 0.8	8.769	11	4 39 51.16	2.0382	18 0 5.6	5.488
12	3 5 58.63	1.9595	12 21 45.3	8.714	12	4 41 53.50	2.0399	18 5 32.5	5.408
13	3 7 56.24	1.9608	12 30 26.5	8.658	13	4 43 55.95	2.0417	18 10 54.5	5.326
14	3 9 53.93	1.9623	12 39 4.3	8.602	14	4 45 58.50	2.0433	18 16 11.6	5.244
15	3 11 51.71	1.9638	12 47 38.7	8.544	15	4 48 1.15	2.0451	18 21 23.8	5.163
16	3 13 49.58	1.9652	12 56 9.6	8.487	16	4 50 3.91	2.0468	18 26 31.1	5.081
17	3 15 47.53	1.9667	13 4 37.1	8.428	17	4 52 6.77	2.0486	18 31 33.5	4.998
18	3 17 45.58	1.9682	13 13 1.0	8.369	18	4 54 9.74	2.0503	18 36 30.8	4.914
19	3 19 43.71	1.9696	13 21 21.4	8.310	19	4 56 12.81	2.0520	18 41 23.1	4.831
20	3 21 41.93	1.9712	13 29 38.2	8.250	20	4 58 15.98	2.0537	18 46 10.4	4.747
21	3 23 40.25	1.9728	13 37 51.4	8.190	21	5 0 19.25	2.0553	18 50 52.7	4.663
22	3 25 38.66	1.9743	13 46 1.0	8.129	22	5 2 22.62	2.0570	18 55 29.9	4.578
23	3 27 37.16	1.9758	N.13 54 6.9	8.067	23	5 4 26.09	2.0587	N.19 0 2.0	4.492
	FRIDAY 2.					SUNDAY 4.			
0	3 29 35.76	1.9775	N.14 2 9.0	8.004	0	5 6 29.66	2.0603	N.19 4 28.9	4.406
1	3 31 34.46	1.9791	14 10 7.4	7.942	1	5 8 33.33	2.0620	19 8 50.7	4.320
2	3 33 33.25	1.9807	14 18 2.0	7.878	2	5 10 37.10	2.0637	19 13 7.3	4.234
3	3 35 32.14	1.9823	14 25 52.8	7.814	3	5 12 40.97	2.0653	19 17 18.8	4.148
4	3 37 31.13	1.9839	14 33 39.7	7.749	4	5 14 44.93	2.0668	19 21 25.0	4.059
5	3 39 30.21	1.9856	14 41 22.7	7.684	5	5 16 48.98	2.0684	19 25 25.9	3.972
6	3 41 29.40	1.9873	14 49 1.8	7.618	6	5 18 53.13	2.0700	19 29 21.6	3.885
7	3 43 28.69	1.9890	14 56 36.9	7.553	7	5 20 57.38	2.0716	19 33 12.1	3.797
8	3 45 28.08	1.9907	15 4 8.1	7.486	8	5 23 1.72	2.0731	19 36 57.2	3.708
9	3 47 27.57	1.9923	15 11 35.2	7.418	9	5 25 6.15	2.0747	19 40 37.0	3.619
10	3 49 27.16	1.9940	15 18 58.3	7.351	10	5 27 10.68	2.0762	19 44 11.5	3.530
11	3 51 26.85	1.9958	15 26 17.3	7.282	11	5 29 15.29	2.0776	19 47 40.6	3.440
12	3 53 26.65	1.9975	15 33 32.1	7.213	12	5 31 19.99	2.0791	19 51 4.3	3.350
13	3 55 26.55	1.9993	15 40 42.8	7.144	13	5 33 24.78	2.0806	19 54 22.6	3.260
14	3 57 26.56	2.0010	15 47 49.3	7.073	14	5 35 29.66	2.0820	19 57 35.5	3.170
15	3 59 26.67	2.0028	15 54 51.6	7.003	15	5 37 34.62	2.0834	20 0 43.0	3.079
16	4 1 26.89	2.0045	16 1 49.6	6.932	16	5 39 39.67	2.0849	20 3 45.0	2.988
17	4 3 27.21	2.0063	16 8 43.4	6.861	17	5 41 44.81	2.0863	20 6 41.6	2.897
18	4 5 27.64	2.0080	16 15 32.9	6.788	18	5 43 50.03	2.0876	20 9 32.6	2.805
19	4 7 28.17	2.0098	16 22 18.0	6.716	19	5 45 55.32	2.0889	20 12 18.2	2.713
20	4 9 28.81	2.0115	16 28 58.8	6.643	20	5 48 0.70	2.0903	20 14 58.2	2.621
21	4 11 29.55	2.0133	16 35 35.1	6.568	21	5 50 6.16	2.0917	20 17 32.7	2.528
22	4 13 30.40	2.0151	16 42 7.0	6.495	22	5 52 11.70	2.0929	20 20 1.6	2.436
23	4 15 31.36	2.0168	16 48 34.5	6.421	23	5 54 17.31	2.0942	20 22 25.0	2.343
24	4 17 32.42	2.0186	N.16 54 57.5	6.346	24	5 56 23.00	2.0954	N.20 24 42.8	2.250

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
MONDAY 5.					WEDNESDAY 7.				
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	5 56 23.00	2.0954	N.20 24 42.8	2.250	0	7 37 58.35	2.1286	N.20 21 57.3	2.401
1	5 58 28.76	2.0967	20 26 55.0	2.157	1	7 40 6.07	2.1287	20 19 30.3	2.499
2	6 0 34.60	2.0979	20 29 1.6	2.063	2	7 42 13.79	2.1288	20 16 57.4	2.598
3	6 2 40.51	2.0991	20 31 2.5	1.968	3	7 44 21.52	2.1289	20 14 18.6	2.695
4	6 4 46.49	2.1002	20 32 57.8	1.874	4	7 46 29.26	2.1290	20 11 34.0	2.793
5	6 6 52.53	2.1013	20 34 47.4	1.779	5	7 48 37.00	2.1291	20 8 43.5	2.891
6	6 8 58.65	2.1025	20 36 31.3	1.685	6	7 50 44.75	2.1292	20 5 47.1	2.988
7	6 11 4.83	2.1036	20 38 9.6	1.591	7	7 52 52.50	2.1292	20 2 44.9	3.086
8	6 13 11.08	2.1047	20 39 42.2	1.495	8	7 55 0.25	2.1292	19 59 36.8	3.183
9	6 15 17.39	2.1057	20 41 9.0	1.399	9	7 57 8.00	2.1292	19 56 22.9	3.280
10	6 17 23.76	2.1068	20 42 30.1	1.304	10	7 59 15.75	2.1292	19 53 3.2	3.378
11	6 19 30.20	2.1078	20 43 45.5	1.209	11	8 1 23.50	2.1292	19 49 37.6	3.475
12	6 21 36.69	2.1087	20 44 55.2	1.113	12	8 3 31.25	2.1292	19 46 6.2	3.572
13	6 23 43.24	2.1097	20 45 59.1	1.018	13	8 5 39.00	2.1291	19 42 29.0	3.668
14	6 25 49.85	2.1107	20 46 57.3	0.921	14	8 7 46.74	2.1290	19 38 46.0	3.765
15	6 27 56.52	2.1116	20 47 49.6	0.824	15	8 9 54.48	2.1289	19 34 57.2	3.862
16	6 30 3.24	2.1124	20 48 36.2	0.728	16	8 12 2.21	2.1288	19 31 2.6	3.958
17	6 32 10.01	2.1133	20 49 17.0	0.632	17	8 14 9.93	2.1287	19 27 2.2	4.055
18	6 34 16.83	2.1141	20 49 52.0	0.535	18	8 16 17.65	2.1286	19 22 56.0	4.151
19	6 36 23.70	2.1149	20 50 21.2	0.438	19	8 18 25.36	2.1284	19 18 44.1	4.247
20	6 38 30.62	2.1158	20 50 44.5	0.341	20	8 20 33.06	2.1283	19 14 26.4	4.343
21	6 40 37.59	2.1166	20 51 2.1	0.244	21	8 22 40.75	2.1282	19 10 3.0	4.438
22	6 42 44.61	2.1173	20 51 13.8	0.147	22	8 24 48.44	2.1280	19 5 33.9	4.533
23	6 44 51.67	2.1180	N.20 51 19.7	0.049	23	8 26 56.11	2.1278	N.19 0 59.1	4.628
TUESDAY 6.					THURSDAY 8.				
0	6 46 58.77	2.1187	N.20 51 19.7	0.048	0	8 29 3.77	2.1276	N.18 56 18.5	4.723
1	6 49 5.91	2.1194	20 51 13.9	0.146	1	8 31 11.42	2.1274	18 51 32.3	4.818
2	6 51 13.10	2.1201	20 51 2.2	0.243	2	8 33 19.06	2.1273	18 46 40.4	4.913
3	6 53 20.32	2.1207	20 50 44.7	0.341	3	8 35 26.69	2.1270	18 41 42.8	5.008
4	6 55 27.58	2.1213	20 50 21.3	0.439	4	8 37 34.30	2.1268	18 36 39.5	5.102
5	6 57 34.87	2.1218	20 49 52.0	0.538	5	8 39 41.90	2.1266	18 31 30.6	5.195
6	6 59 42.20	2.1224	20 49 16.8	0.635	6	8 41 49.49	2.1263	18 26 16.1	5.289
7	7 1 49.56	2.1229	20 48 35.8	0.733	7	8 43 57.06	2.1261	18 20 55.9	5.382
8	7 3 56.95	2.1234	20 47 48.9	0.831	8	8 46 4.62	2.1259	18 15 30.2	5.475
9	7 6 4.37	2.1239	20 46 56.1	0.928	9	8 48 12.17	2.1258	18 9 58.9	5.568
10	7 8 11.82	2.1244	20 45 57.5	1.027	10	8 50 19.71	2.1255	18 4 22.0	5.662
11	7 10 19.30	2.1248	20 44 52.9	1.126	11	8 52 27.23	2.1252	17 58 39.5	5.754
12	7 12 26.80	2.1253	20 43 42.4	1.224	12	8 54 34.73	2.1249	17 52 51.5	5.846
13	7 14 34.33	2.1257	20 42 26.0	1.322	13	8 56 42.22	2.1248	17 46 58.0	5.938
14	7 16 41.88	2.1260	20 41 3.8	1.419	14	8 58 49.70	2.1245	17 40 59.0	6.030
15	7 18 49.45	2.1263	20 39 35.7	1.518	15	9 0 57.16	2.1243	17 34 54.4	6.122
16	7 20 57.04	2.1267	20 38 1.6	1.617	16	9 3 4.61	2.1240	17 28 44.4	6.212
17	7 23 4.65	2.1270	20 36 21.7	1.714	17	9 5 12.04	2.1238	17 22 29.0	6.303
18	7 25 12.28	2.1273	20 34 35.9	1.813	18	9 7 19.46	2.1235	17 16 8.1	6.393
19	7 27 19.93	2.1276	20 32 44.2	1.911	19	9 9 26.86	2.1233	17 9 41.8	6.483
20	7 29 27.59	2.1278	20 30 46.6	2.009	20	9 11 34.25	2.1231	17 3 10.1	6.573
21	7 31 35.26	2.1280	20 28 43.1	2.108	21	9 13 41.63	2.1228	16 56 33.0	6.663
22	7 33 42.95	2.1282	20 26 33.7	2.206	22	9 15 48.99	2.1226	16 49 50.6	6.752
23	7 35 50.64	2.1283	20 24 18.4	2.303	23	9 17 56.34	2.1224	16 43 2.8	6.842
24	7 37 58.35	2.1286	N.20 21 57.3	2.401	24	9 20 3.68	2.1222	N.16 36 9.6	6.930

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
		FRIDAY 9.					SUNDAY 11.		
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	9 20 3.68	2.1222	N.16 36 9.6	6.930	0	11 1 57.56	2.1323	N. 9 29 30.3	10.653
1	9 22 11.00	2.1220	16 29 11.2	7.018	1	11 4 5.52	2.1331	9 18 49.2	10.717
2	9 24 18.32	2.1218	16 22 7.5	7.106	2	11 6 13.53	2.1339	9 8 4.3	10.779
3	9 26 25.62	2.1216	16 14 58.5	7.193	3	11 8 21.59	2.1349	8 57 15.7	10.842
4	9 28 32.91	2.1214	16 7 44.3	7.280	4	11 10 29.72	2.1359	8 46 23.3	10.903
5	9 30 40.19	2.1213	16 0 24.9	7.367	5	11 12 37.90	2.1369	8 35 27.3	10.964
6	9 32 47.46	2.1211	15 53 0.3	7.453	6	11 14 46.15	2.1380	8 24 27.6	11.024
7	9 34 54.72	2.1209	15 45 30.5	7.539	7	11 16 54.46	2.1391	8 13 24.4	11.083
8	9 37 1.97	2.1208	15 37 55.6	7.625	8	11 19 2.84	2.1403	8 2 17.7	11.141
9	9 39 9.21	2.1207	15 30 15.5	7.710	9	11 21 11.29	2.1414	7 51 7.5	11.199
10	9 41 16.45	2.1206	15 22 30.4	7.795	10	11 23 19.81	2.1427	7 39 53.8	11.256
11	9 43 23.68	2.1204	15 14 40.1	7.880	11	11 25 28.41	2.1440	7 28 36.8	11.318
12	9 45 30.90	2.1203	15 6 44.8	7.963	12	11 27 37.09	2.1453	7 17 16.4	11.367
13	9 47 38.12	2.1203	14 58 44.5	8.048	13	11 29 45.85	2.1467	7 5 52.8	11.421
14	9 49 45.34	2.1203	14 50 39.1	8.131	14	11 31 54.69	2.1480	6 54 25.9	11.475
15	9 51 52.55	2.1203	14 42 28.8	8.213	15	11 34 3.61	2.1494	6 42 55.8	11.528
16	9 53 59.77	2.1203	14 34 13.6	8.295	16	11 36 12.62	2.1509	6 31 22.6	11.579
17	9 56 6.98	2.1202	14 25 53.4	8.377	17	11 38 21.72	2.1524	6 19 46.3	11.631
18	9 58 14.19	2.1202	14 17 28.3	8.459	18	11 40 30.91	2.1540	6 8 6.9	11.681
19	10 0 21.40	2.1203	14 8 58.3	8.540	19	11 42 40.20	2.1557	5 56 24.6	11.730
20	10 2 28.62	2.1203	14 0 23.5	8.620	20	11 44 49.59	2.1573	5 44 39.3	11.778
21	10 4 35.84	2.1203	13 51 43.9	8.700	21	11 46 59.07	2.1589	5 32 51.2	11.826
22	10 6 43.06	2.1204	13 42 59.5	8.779	22	11 49 8.66	2.1607	5 21 0.2	11.873
23	10 8 50.29	2.1206	N.13 34 10.4	8.858	23	11 51 18.36	2.1625	N. 5 9 6.5	11.918
		SATURDAY 10.					MONDAY 12.		
0	10 10 57.53	2.1208	N.13 25 16.5	8.937	0	11 53 28.16	2.1643	N. 4 57 10.1	11.963
1	10 13 4.78	2.1209	13 16 17.9	9.015	1	11 55 38.07	2.1662	4 45 11.0	12.007
2	10 15 12.04	2.1211	13 7 14.7	9.093	2	11 57 48.10	2.1681	4 33 9.3	12.049
3	10 17 19.31	2.1213	12 58 6.8	9.169	3	11 59 58.24	2.1701	4 21 5.1	12.091
4	10 19 26.59	2.1214	12 48 54.4	9.246	4	12 2 8.51	2.1722	4 8 58.4	12.132
5	10 21 33.88	2.1217	12 39 37.3	9.323	5	12 4 18.90	2.1742	3 56 49.3	12.171
6	10 23 41.20	2.1221	12 30 15.7	9.398	6	12 6 29.41	2.1763	3 44 37.9	12.209
7	10 25 48.53	2.1223	12 20 49.6	9.473	7	12 8 40.05	2.1784	3 32 24.2	12.247
8	10 27 55.88	2.1227	12 11 19.0	9.547	8	12 10 50.82	2.1807	3 20 8.2	12.284
9	10 30 3.25	2.1231	12 1 44.0	9.620	9	12 13 1.73	2.1829	3 7 50.1	12.320
10	10 32 10.65	2.1235	11 52 4.6	9.693	10	12 15 12.77	2.1852	2 55 29.8	12.355
11	10 34 18.07	2.1238	11 42 20.8	9.766	11	12 17 23.95	2.1875	2 43 7.5	12.388
12	10 36 25.51	2.1243	11 32 32.7	9.838	12	12 19 35.27	2.1899	2 30 43.3	12.419
13	10 38 32.98	2.1248	11 22 40.3	9.909	13	12 21 46.74	2.1923	2 18 17.2	12.451
14	10 40 40.48	2.1253	11 12 43.6	9.980	14	12 23 58.35	2.1948	2 5 49.2	12.481
15	10 42 48.02	2.1259	11 2 42.7	10.050	15	12 26 10.12	2.1974	1 53 19.5	12.509
16	10 44 55.59	2.1264	10 52 37.6	10.120	16	12 28 22.04	2.2000	1 40 48.1	12.538
17	10 47 3.19	2.1270	10 42 28.3	10.189	17	12 30 34.12	2.2027	1 28 15.0	12.565
18	10 49 10.83	2.1277	10 32 14.9	10.257	18	12 32 46.36	2.2053	1 15 40.3	12.590
19	10 51 18.51	2.1283	10 21 57.5	10.324	19	12 34 58.76	2.2081	1 3 4.2	12.613
20	10 53 26.23	2.1290	10 11 36.0	10.392	20	12 37 11.33	2.2108	0 50 26.7	12.637
21	10 55 33.99	2.1298	10 1 10.5	10.458	21	12 39 24.06	2.2137	0 37 47.8	12.659
22	10 57 41.80	2.1305	9 50 41.0	10.524	22	12 41 36.97	2.2166	0 25 7.6	12.680
23	10 59 49.65	2.1313	9 40 7.6	10.589	23	12 43 50.05	2.2195	N. 0 12 26.2	12.699
24	11 1 57.56	2.1323	N. 9 29 30.3	10.653	24	12 46 3.31	2.2225	S. 0 0 16.3	12.718

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 13.					THURSDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	12 46 3.31	2.2225	S. 0 0 16.3	12.718	0	14 36 59.35	2.4138	S. 10 4 42.7	11.870
1	12 48 16.75	2.2255	0 12 59.9	12.734	1	14 39 24.31	2.4184	10 16 33.2	11.813
2	12 50 30.37	2.2285	0 25 44.4	12.749	2	14 41 49.56	2.4232	10 28 20.2	11.753
3	12 52 44.17	2.2317	0 38 29.8	12.764	3	14 44 15.09	2.4278	10 40 3.6	11.692
4	12 54 58.17	2.2348	0 51 16.1	12.777	4	14 46 40.90	2.4325	10 51 43.2	11.628
5	12 57 12.35	2.2380	1 4 3.1	12.788	5	14 49 6.99	2.4373	11 3 19.0	11.564
6	12 59 26.73	2.2413	1 16 50.7	12.798	6	14 51 33.37	2.4420	11 14 50.9	11.498
7	13 1 41.31	2.2446	1 29 38.9	12.808	7	14 54 0.03	2.4468	11 26 18.8	11.430
8	13 3 56.08	2.2479	1 42 27.6	12.816	8	14 56 26.98	2.4515	11 37 42.5	11.360
9	13 6 11.06	2.2514	1 55 16.8	12.823	9	14 58 54.21	2.4562	11 49 2.0	11.288
10	13 8 26.25	2.2548	2 8 6.3	12.827	10	15 1 21.72	2.4609	12 0 17.1	11.215
11	13 10 41.64	2.2583	2 20 56.0	12.830	11	15 3 49.52	2.4657	12 11 27.8	11.140
12	13 12 57.24	2.2618	2 33 45.9	12.833	12	15 6 17.60	2.4703	12 22 33.9	11.063
13	13 15 13.06	2.2654	2 46 35.9	12.833	13	15 8 45.96	2.4750	12 33 35.4	10.985
14	13 17 29.09	2.2690	2 59 25.8	12.832	14	15 11 14.60	2.4797	12 44 32.1	10.904
15	13 19 45.34	2.2727	3 12 15.7	12.830	15	15 13 43.52	2.4843	12 55 23.9	10.823
16	13 22 1.81	2.2763	3 25 5.4	12.826	16	15 16 12.72	2.4890	13 6 10.8	10.739
17	13 24 18.50	2.2801	3 37 54.8	12.821	17	15 18 42.20	2.4936	13 16 52.6	10.653
18	13 26 35.42	2.2839	3 50 43.9	12.814	18	15 21 11.95	2.4982	13 27 29.2	10.566
19	13 28 52.57	2.2877	4 3 32.5	12.806	19	15 23 41.98	2.5028	13 38 0.5	10.477
20	13 31 9.95	2.2917	4 16 20.6	12.796	20	15 26 12.29	2.5074	13 48 26.4	10.386
21	13 33 27.57	2.2956	4 29 8.0	12.785	21	15 28 42.87	2.5119	13 58 46.8	10.294
22	13 35 45.42	2.2995	4 41 54.8	12.773	22	15 31 13.72	2.5164	14 9 1.7	10.200
23	13 38 3.51	2.3035	S. 4 54 40.7	12.758	23	15 33 44.84	2.5209	S. 14 19 10.8	10.104
	WEDNESDAY 14.					FRIDAY 16.			
0	13 40 21.84	2.3075	S. 5 7 25.7	12.742	0	15 36 16.23	2.5254	S. 14 29 14.2	10.007
1	13 42 40.41	2.3116	5 20 9.7	12.725	1	15 38 47.89	2.5298	14 39 11.7	9.908
2	13 44 59.23	2.3158	5 32 52.7	12.706	2	15 41 19.80	2.5341	14 49 3.2	9.807
3	13 47 18.30	2.3199	5 45 34.4	12.684	3	15 43 51.98	2.5385	14 58 48.6	9.705
4	13 49 37.62	2.3241	5 58 14.8	12.662	4	15 46 24.42	2.5428	15 8 27.8	9.601
5	13 51 57.19	2.3283	6 10 53.9	12.639	5	15 48 57.12	2.5471	15 18 0.7	9.496
6	13 54 17.02	2.3326	6 23 31.5	12.613	6	15 51 30.07	2.5513	15 27 27.3	9.389
7	13 56 37.10	2.3368	6 36 7.5	12.587	7	15 54 3.27	2.5553	15 36 47.4	9.280
8	13 58 57.44	2.3412	6 48 41.9	12.558	8	15 56 36.71	2.5594	15 46 0.9	9.170
9	14 1 18.04	2.3455	7 1 14.5	12.528	9	15 59 10.40	2.5635	15 55 7.8	9.059
10	14 3 38.90	2.3499	7 13 45.2	12.496	10	16 1 44.33	2.5675	16 4 8.0	8.947
11	14 6 0.03	2.3543	7 26 14.0	12.463	11	16 4 18.50	2.5715	16 13 1.4	8.832
12	14 8 21.42	2.3588	7 38 40.7	12.427	12	16 6 52.91	2.5754	16 21 47.8	8.715
13	14 10 43.08	2.3632	7 51 5.2	12.390	13	16 9 27.55	2.5793	16 30 27.2	8.597
14	14 13 5.00	2.3677	8 3 27.5	12.352	14	16 12 2.42	2.5830	16 38 59.5	8.478
15	14 15 27.20	2.3723	8 15 47.4	12.311	15	16 14 37.51	2.5867	16 47 24.6	8.358
16	14 17 49.67	2.3768	8 28 4.8	12.268	16	16 17 12.82	2.5903	16 55 42.5	8.237
17	14 20 12.41	2.3813	8 40 19.6	12.225	17	16 19 48.35	2.5939	17 3 53.0	8.113
18	14 22 35.43	2.3859	8 52 31.8	12.179	18	16 22 24.09	2.5973	17 11 56.1	7.989
19	14 24 58.72	2.3905	9 4 41.1	12.132	19	16 25 0.03	2.6008	17 19 51.7	7.863
20	14 27 22.29	2.3952	9 16 47.6	12.083	20	16 27 36.18	2.6041	17 27 39.7	7.736
21	14 29 46.14	2.3998	9 28 51.1	12.033	21	16 30 12.52	2.6073	17 35 20.0	7.608
22	14 32 10.26	2.4043	9 40 51.5	11.981	22	16 32 49.06	2.6105	17 42 52.6	7.478
23	14 34 34.66	2.4091	9 52 48.8	11.927	23	16 35 25.78	2.6135	17 50 17.4	7.348
24	14 36 59.35	2.4138	S. 10 4 42.7	11.870	24	16 38 2.68	2.6165	S. 17 57 34.3	7.215

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 17.					MONDAY 19.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	16 38 2.68	2.6165	S. 17 57 34.3	7.215	0	18 45 4.53	2.6310	S. 20 56 27.6	0.091
1	16 40 39.76	2.6195	18 4 43.2	7.082	1	18 47 42.31	2.6283	20 56 28.5	0.060
2	16 43 17.02	2.6223	18 11 44.1	6.948	2	18 50 19.93	2.6256	20 56 20.4	0.210
3	16 45 54.44	2.6250	18 18 36.9	6.812	3	18 52 57.38	2.6227	20 56 3.3	0.360
4	16 48 32.02	2.6276	18 25 21.5	6.675	4	18 55 34.65	2.6197	20 55 37.2	0.510
5	16 51 9.75	2.6302	18 31 57.9	6.538	5	18 58 11.74	2.6166	20 55 2.1	0.658
6	16 53 47.64	2.6327	18 38 26.0	6.399	6	19 0 48.64	2.6133	20 54 18.2	0.806
7	16 56 25.67	2.6349	18 44 45.8	6.260	7	19 3 25.34	2.6100	20 53 25.4	0.954
8	16 59 3.83	2.6372	18 50 57.2	6.118	8	19 6 1.84	2.6067	20 52 23.7	1.101
9	17 1 42.13	2.6394	18 57 0.0	5.977	9	19 8 38.14	2.6032	20 51 13.3	1.247
10	17 4 20.56	2.6414	19 2 54.4	5.835	10	19 11 14.22	2.5995	20 49 54.1	1.393
11	17 6 59.10	2.6433	19 8 40.2	5.692	11	19 13 50.08	2.5958	20 48 26.2	1.538
12	17 9 37.75	2.6451	19 14 17.4	5.548	12	19 16 25.72	2.5920	20 46 49.6	1.682
13	17 12 16.51	2.6468	19 19 45.9	5.403	13	19 19 1.12	2.5880	20 45 4.4	1.824
14	17 14 55.37	2.6484	19 25 5.7	5.257	14	19 21 36.28	2.5840	20 43 10.7	1.967
15	17 17 34.32	2.6498	19 30 16.7	5.110	15	19 24 11.20	2.5799	20 41 8.4	2.109
16	17 20 13.35	2.6512	19 35 18.9	4.963	16	19 26 45.87	2.5757	20 38 57.6	2.250
17	17 22 52.46	2.6525	19 40 12.2	4.815	17	19 29 20.28	2.5713	20 36 38.4	2.389
18	17 25 31.65	2.6537	19 44 56.7	4.667	18	19 31 54.43	2.5670	20 34 10.9	2.528
19	17 28 10.90	2.6547	19 49 32.2	4.517	19	19 34 28.32	2.5625	20 31 35.0	2.667
20	17 30 50.21	2.6556	19 53 58.7	4.368	20	19 37 1.93	2.5579	20 28 50.9	2.804
21	17 33 29.57	2.6564	19 58 16.3	4.218	21	19 39 35.27	2.5533	20 25 58.5	2.941
22	17 36 8.98	2.6571	20 2 24.8	4.067	22	19 42 8.33	2.5487	20 22 58.0	3.076
23	17 38 48.42	2.6576	S. 20 6 24.3	3.916	23	19 44 41.11	2.5438	S. 20 19 49.4	3.210
	SUNDAY 18.					TUESDAY 20.			
0	17 41 27.89	2.6580	S. 20 10 14.7	3.764	0	19 47 13.59	2.5389	S. 20 16 32.8	3.343
1	17 44 7.38	2.6583	20 13 56.0	3.612	1	19 49 45.78	2.5340	20 13 8.2	3.476
2	17 46 46.89	2.6585	20 17 28.1	3.459	2	19 52 17.67	2.5290	20 9 35.7	3.608
3	17 49 26.40	2.6586	20 20 51.1	3.307	3	19 54 49.26	2.5240	20 5 55.3	3.738
4	17 52 5.92	2.6585	20 24 4.9	3.154	4	19 57 20.55	2.5188	20 2 7.2	3.867
5	17 54 45.42	2.6583	20 27 9.6	3.001	5	19 59 51.52	2.5136	19 58 11.3	3.995
6	17 57 24.91	2.6580	20 30 5.0	2.848	6	20 2 22.18	2.5083	19 54 7.8	4.122
7	18 0 4.38	2.6575	20 32 51.3	2.694	7	20 4 52.52	2.5030	19 49 56.7	4.248
8	18 2 43.81	2.6569	20 35 28.3	2.540	8	20 7 22.54	2.4976	19 45 38.1	4.372
9	18 5 23.21	2.6562	20 37 56.1	2.387	9	20 9 52.23	2.4922	19 41 12.1	4.496
10	18 8 2.56	2.6554	20 40 14.7	2.233	10	20 12 21.60	2.4868	19 36 38.6	4.619
11	18 10 41.86	2.6545	20 42 24.0	2.078	11	20 14 50.64	2.4812	19 31 57.8	4.740
12	18 13 21.10	2.6534	20 44 24.1	1.925	12	20 17 19.34	2.4755	19 27 9.8	4.860
13	18 16 0.27	2.6522	20 46 15.0	1.771	13	20 19 47.70	2.4699	19 22 14.6	4.979
14	18 18 39.37	2.6509	20 47 56.6	1.617	14	20 22 15.73	2.4643	19 17 12.3	5.097
15	18 21 18.38	2.6494	20 49 29.0	1.463	15	20 24 43.42	2.4586	19 12 3.0	5.213
16	18 23 57.30	2.6478	20 50 52.2	1.310	16	20 27 10.76	2.4528	19 6 46.7	5.329
17	18 26 36.12	2.6462	20 52 6.2	1.157	17	20 29 37.76	2.4471	19 1 23.5	5.443
18	18 29 14.84	2.6443	20 53 11.0	1.004	18	20 32 4.41	2.4413	18 55 53.5	5.556
19	18 31 53.44	2.6424	20 54 6.7	0.851	19	20 34 30.71	2.4354	18 50 16.8	5.668
20	18 34 31.93	2.6404	20 54 53.1	0.698	20	20 36 56.66	2.4296	18 44 33.4	5.778
21	18 37 10.29	2.6382	20 55 30.4	0.546	21	20 39 22.25	2.4236	18 38 43.4	5.888
22	18 39 48.51	2.6358	20 55 58.6	0.393	22	20 41 47.49	2.4177	18 32 46.8	5.997
23	18 42 26.59	2.6335	20 56 17.6	0.242	23	20 44 12.37	2.4117	18 26 43.8	6.103
24	18 45 4.53	2.6310	S. 20 56 27.6	0.091	24	20 46 36.89	2.4057	S. 18 20 34.5	6.208

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 21.					FRIDAY 23.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	20 46 36.89	2.4057	S. 18 20 34.5	6.208	0	22 35 16.00	2.1300	S. 11 44 27.0	9.837
1	20 49 1.05	2.3998	18 14 18.9	6.313	1	22 37 23.65	2.1250	11 34 35.4	9.884
2	20 51 24.86	2.3938	18 7 57.0	6.417	2	22 39 31.00	2.1202	11 24 41.0	9.930
3	20 53 48.30	2.3877	18 1 28.9	6.518	3	22 41 38.07	2.1153	11 14 43.8	9.975
4	20 56 11.38	2.3817	17 54 54.8	6.618	4	22 43 44.84	2.1104	11 4 43.9	10.020
5	20 58 34.10	2.3756	17 48 14.7	6.718	5	22 45 51.32	2.1057	10 54 41.4	10.063
6	21 0 56.45	2.3695	17 41 28.7	6.816	6	22 47 57.52	2.1010	10 44 36.3	10.106
7	21 3 18.44	2.3635	17 34 36.8	6.913	7	22 50 3.44	2.0964	10 34 28.7	10.147
8	21 5 40.07	2.3575	17 27 39.2	7.008	8	22 52 9.09	2.0918	10 24 18.7	10.187
9	21 8 1.34	2.3514	17 20 35.9	7.103	9	22 54 14.46	2.0872	10 14 6.3	10.227
10	21 10 22.24	2.3453	17 13 26.9	7.196	10	22 56 19.55	2.0827	10 3 51.5	10.265
11	21 12 42.78	2.3393	17 6 12.4	7.288	11	22 58 24.38	2.0783	9 53 34.5	10.302
12	21 15 2.95	2.3332	16 58 52.4	7.378	12	23 0 28.94	2.0738	9 43 15.3	10.338
13	21 17 22.76	2.3272	16 51 27.0	7.468	13	23 2 33.24	2.0695	9 32 53.9	10.373
14	21 19 42.21	2.3211	16 43 56.3	7.555	14	23 4 37.28	2.0653	9 22 30.5	10.408
15	21 22 1.29	2.3151	16 36 20.4	7.642	15	23 6 41.07	2.0610	9 12 5.0	10.442
16	21 24 20.02	2.3091	16 28 39.3	7.728	16	23 8 44.60	2.0568	9 1 37.5	10.474
17	21 26 38.38	2.3030	16 20 53.0	7.812	17	23 10 47.89	2.0527	8 51 8.1	10.506
18	21 28 56.38	2.2970	16 13 1.8	7.895	18	23 12 50.93	2.0487	8 40 36.8	10.537
19	21 31 14.02	2.2910	16 5 5.6	7.978	19	23 14 53.73	2.0447	8 30 3.7	10.566
20	21 33 31.30	2.2850	15 57 4.5	8.058	20	23 16 56.29	2.0408	8 19 28.9	10.595
21	21 35 48.22	2.2791	15 48 58.6	8.137	21	23 18 58.62	2.0368	8 8 52.3	10.623
22	21 38 4.79	2.2732	15 40 48.1	8.215	22	23 21 0.71	2.0330	7 58 14.1	10.650
23	21 40 21.00	2.2673	S. 15 32 32.8	8.293	23	23 23 2.58	2.0293	S. 7 47 34.3	10.676
	THURSDAY 22.					SATURDAY 24.			
0	21 42 36.86	2.2614	S. 15 24 13.0	8.368	0	23 25 4.22	2.0255	S. 7 36 53.0	10.701
1	21 44 52.37	2.2555	15 15 48.7	8.443	1	23 27 5.64	2.0218	7 26 10.2	10.725
2	21 47 7.52	2.2497	15 7 19.9	8.516	2	23 29 6.84	2.0183	7 15 26.0	10.748
3	21 49 22.33	2.2438	14 58 46.8	8.588	3	23 31 7.83	2.0147	7 4 40.4	10.772
4	21 51 36.78	2.2380	14 50 9.4	8.659	4	23 33 8.60	2.0112	6 53 53.4	10.793
5	21 53 50.89	2.2323	14 41 27.7	8.728	5	23 35 9.17	2.0078	6 43 5.2	10.813
6	21 56 4.66	2.2266	14 32 42.0	8.797	6	23 37 9.53	2.0044	6 32 15.8	10.834
7	21 58 18.08	2.2209	14 23 52.1	8.865	7	23 39 9.70	2.0011	6 21 25.1	10.854
8	22 0 31.17	2.2153	14 14 58.2	8.931	8	23 41 9.66	1.9978	6 10 33.3	10.872
9	22 2 43.91	2.2096	14 6 0.4	8.996	9	23 43 9.43	1.9946	5 59 40.5	10.889
10	22 4 56.32	2.2040	13 56 58.7	9.060	10	23 45 9.01	1.9915	5 48 46.6	10.906
11	22 7 8.39	2.1984	13 47 53.2	9.123	11	23 47 8.41	1.9884	5 37 51.8	10.922
12	22 9 20.13	2.1929	13 38 44.0	9.184	12	23 49 7.62	1.9853	5 26 56.0	10.938
13	22 11 31.54	2.1874	13 29 31.1	9.244	13	23 51 6.65	1.9824	5 15 59.3	10.952
14	22 13 42.62	2.1820	13 20 14.7	9.303	14	23 53 5.51	1.9795	5 5 1.8	10.965
15	22 15 53.38	2.1767	13 10 54.7	9.362	15	23 55 4.19	1.9766	4 54 3.5	10.978
16	22 18 3.82	2.1713	13 1 31.2	9.419	16	23 57 2.70	1.9738	4 43 4.4	10.990
17	22 20 13.93	2.1659	12 52 4.4	9.475	17	23 59 1.04	1.9711	4 32 4.7	11.001
18	22 22 23.73	2.1607	12 42 34.2	9.530	18	0 0 59.23	1.9684	4 21 4.3	11.012
19	22 24 33.22	2.1555	12 33 0.8	9.583	19	0 2 57.25	1.9658	4 10 3.3	11.021
20	22 26 42.39	2.1503	12 23 24.2	9.637	20	0 4 55.12	1.9632	3 59 1.8	11.029
21	22 28 51.25	2.1451	12 13 44.4	9.688	21	0 6 52.83	1.9607	3 47 59.8	11.038
22	22 30 59.80	2.1400	12 4 1.6	9.738	22	0 8 50.40	1.9583	3 36 57.3	11.045
23	22 33 8.05	2.1350	11 54 15.8	9.788	23	0 10 47.82	1.9558	3 25 54.4	11.051
24	22 35 16.00	2.1300	S. 11 44 27.0	9.837	24	0 12 45.10	1.9535	S. 3 14 51.2	11.057

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 25.					TUESDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	0 12 45.10	1.9535	S. 3 14 51.2	11.057	0	1 44 52.66	1.9051	N. 5 28 55.3	10.506
1	0 14 42.24	1.9513	3 3 47.6	11.062	1	1 46 46.97	1.9053	5 39 24.8	10.478
2	0 16 39.25	1.9491	2 52 43.8	11.065	2	1 48 41.29	1.9055	5 49 52.7	10.451
3	0 18 36.13	1.9469	2 41 39.8	11.069	3	1 50 35.63	1.9058	6 0 18.9	10.422
4	0 20 32.88	1.9448	2 30 35.5	11.072	4	1 52 29.99	1.9062	6 10 43.3	10.392
5	0 22 29.50	1.9427	2 19 31.1	11.074	5	1 54 24.37	1.9065	6 21 5.9	10.361
6	0 24 26.00	1.9408	2 8 26.6	11.075	6	1 56 18.77	1.9069	6 31 26.6	10.330
7	0 26 22.39	1.9388	1 57 22.1	11.076	7	1 58 13.20	1.9074	6 41 45.5	10.299
8	0 28 18.66	1.9369	1 46 17.5	11.076	8	2 0 7.66	1.9079	6 52 2.5	10.267
9	0 30 14.82	1.9351	1 35 13.0	11.074	9	2 2 2.15	1.9085	7 2 17.5	10.234
10	0 32 10.87	1.9333	1 24 8.6	11.073	10	2 3 56.68	1.9091	7 12 30.6	10.201
11	0 34 6.82	1.9316	1 13 4.3	11.071	11	2 5 51.24	1.9097	7 22 41.6	10.166
12	0 36 2.66	1.9299	1 2 0.1	11.068	12	2 7 45.84	1.9103	7 32 50.5	10.132
13	0 37 58.41	1.9283	0 50 56.1	11.064	13	2 9 40.48	1.9111	7 42 57.4	10.097
14	0 39 54.06	1.9268	0 39 52.4	11.059	14	2 11 35.17	1.9118	7 53 2.1	10.060
15	0 41 49.62	1.9253	0 28 49.0	11.054	15	2 13 29.90	1.9125	8 3 4.6	10.023
16	0 43 45.09	1.9238	0 17 45.9	11.048	16	2 15 24.67	1.9133	8 13 4.9	9.987
17	0 45 40.48	1.9225	S. 0 6 43.2	11.042	17	2 17 19.50	1.9143	8 23 3.0	9.948
18	0 47 35.79	1.9212	N. 0 4 19.1	11.035	18	2 19 14.38	1.9152	8 32 58.7	9.910
19	0 49 31.02	1.9199	0 15 21.0	11.028	19	2 21 9.32	1.9161	8 42 52.2	9.872
20	0 51 26.18	1.9187	0 26 22.4	11.018	20	2 23 4.31	1.9170	8 52 43.3	9.832
21	0 53 21.26	1.9174	0 37 23.2	11.008	21	2 24 59.36	1.9181	9 2 32.0	9.791
22	0 55 16.27	1.9163	0 48 23.4	10.998	22	2 26 54.48	1.9192	9 12 18.2	9.750
23	0 57 11.22	1.9153	N. 0 59 23.0	10.988	23	2 28 49.66	1.9202	N. 9 22 2.0	9.708
	MONDAY 26.					WEDNESDAY 28.			
0	0 59 6.10	1.9143	N. 1 10 22.0	10.978	0	2 30 44.90	1.9213	N. 9 31 43.2	9.666
1	1 1 0.93	1.9133	1 21 20.3	10.965	1	2 32 40.21	1.9224	9 41 21.9	9.623
2	1 2 55.70	1.9124	1 32 17.8	10.952	2	2 34 35.59	1.9236	9 50 58.0	9.580
3	1 4 50.42	1.9116	1 43 14.5	10.938	3	2 36 31.04	1.9248	10 0 31.5	9.537
4	1 6 45.09	1.9108	1 54 10.4	10.925	4	2 38 26.56	1.9260	10 10 2.4	9.492
5	1 8 39.72	1.9101	2 5 5.5	10.910	5	2 40 22.16	1.9273	10 19 30.5	9.446
6	1 10 34.30	1.9093	2 15 59.6	10.894	6	2 42 17.83	1.9285	10 28 55.9	9.400
7	1 12 28.84	1.9087	2 26 52.8	10.879	7	2 44 13.58	1.9299	10 38 18.5	9.353
8	1 14 23.34	1.9081	2 37 45.1	10.862	8	2 46 9.42	1.9313	10 47 38.3	9.307
9	1 16 17.81	1.9075	2 48 36.3	10.844	9	2 48 5.34	1.9327	10 56 55.3	9.259
10	1 18 12.24	1.9070	2 59 26.4	10.827	10	2 50 1.34	1.9341	11 6 9.4	9.210
11	1 20 6.65	1.9066	3 10 15.5	10.808	11	2 51 57.43	1.9355	11 15 20.5	9.161
12	1 22 1.03	1.9062	3 21 3.4	10.788	12	2 53 53.60	1.9369	11 24 28.7	9.112
13	1 23 55.39	1.9058	3 31 50.1	10.768	13	2 55 49.86	1.9385	11 33 33.9	9.061
14	1 25 49.73	1.9055	3 42 35.6	10.748	14	2 57 46.22	1.9401	11 42 36.0	9.010
15	1 27 44.05	1.9052	3 53 19.9	10.728	15	2 59 42.67	1.9416	11 51 35.1	8.959
16	1 29 38.35	1.9050	4 4 2.9	10.705	16	3 1 39.21	1.9431	12 0 31.1	8.907
17	1 31 32.65	1.9049	4 14 44.5	10.682	17	3 3 35.84	1.9448	12 9 23.9	8.853
18	1 33 26.94	1.9048	4 25 24.7	10.659	18	3 5 32.58	1.9464	12 18 13.5	8.800
19	1 35 21.22	1.9048	4 36 3.6	10.636	19	3 7 29.41	1.9480	12 26 59.9	8.747
20	1 37 15.51	1.9048	4 46 41.0	10.611	20	3 9 26.34	1.9497	12 35 43.1	8.693
21	1 39 9.79	1.9047	4 57 16.9	10.586	21	3 11 23.37	1.9514	12 44 23.0	8.638
22	1 41 4.07	1.9048	5 7 51.3	10.560	22	3 13 20.51	1.9532	12 52 59.6	8.582
23	1 42 58.36	1.9049	5 18 24.1	10.533	23	3 15 17.75	1.9548	13 1 32.8	8.525
24	1 44 52.66	1.9051	N. 5 28 55.3	10.506	24	3 17 15.09	1.9566	N. 13 10 2.6	8.468

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 29.			
	h m s	s	° ′ ″	″
0	3 17 15.09	1.9566	N.13 10 2.6	8.468
1	3 19 12.54	1.9584	13 18 28.9	8.410
2	3 21 10.10	1.9602	13 26 51.8	8.353
3	3 23 7.76	1.9620	13 35 11.2	8.294
4	3 25 5.54	1.9638	13 43 27.1	8.234
5	3 27 3.42	1.9657	13 51 39.3	8.173
6	3 29 1.42	1.9676	13 59 47.9	8.113
7	3 30 59.53	1.9694	14 7 52.9	8.053
8	3 32 57.75	1.9713	14 15 54.2	7.991
9	3 34 56.09	1.9733	14 23 51.8	7.928
10	3 36 54.54	1.9752	14 31 45.6	7.865
11	3 38 53.11	1.9771	14 39 35.6	7.802
12	3 40 51.79	1.9790	14 47 21.8	7.738
13	3 42 50.59	1.9810	14 55 4.1	7.673
14	3 44 49.51	1.9830	15 2 42.6	7.608
15	3 46 48.55	1.9850	15 10 17.1	7.542
16	3 48 47.71	1.9870	15 17 47.6	7.475
17	3 50 46.99	1.9890	15 25 14.1	7.408
18	3 52 46.39	1.9910	15 32 36.6	7.341
19	3 54 45.91	1.9930	15 39 55.0	7.273
20	3 56 45.55	1.9950	15 47 9.3	7.204
21	3 58 45.31	1.9971	15 54 19.5	7.135
22	4 0 45.20	1.9991	16 1 25.5	7.065
23	4 2 45.20	2.0011	N.16 8 27.3	6.994
	FRIDAY 30.			
0	4 4 45.33	2.0033	N.16 15 24.8	6.923
1	4 6 45.59	2.0053	16 22 18.1	6.852
2	4 8 45.97	2.0073	16 29 7.1	6.780
3	4 10 46.47	2.0093	16 35 51.7	6.707
4	4 12 47.09	2.0113	16 42 31.9	6.634
5	4 14 47.84	2.0135	16 49 7.8	6.561
6	4 16 48.71	2.0156	16 55 39.2	6.487
7	4 18 49.71	2.0177	17 2 6.2	6.412
8	4 20 50.83	2.0197	17 8 28.6	6.336
9	4 22 52.07	2.0218	17 14 46.5	6.261
10	4 24 53.44	2.0238	17 20 59.9	6.185
11	4 26 54.92	2.0258	17 27 8.7	6.108
12	4 28 56.53	2.0278	17 33 12.8	6.030
13	4 30 58.26	2.0299	17 39 12.3	5.953
14	4 33 0.12	2.0319	17 45 7.1	5.874
15	4 35 2.09	2.0339	17 50 57.2	5.795
16	4 37 4.19	2.0359	17 56 42.5	5.716
17	4 39 6.40	2.0379	18 2 23.1	5.636
18	4 41 8.74	2.0400	18 7 58.8	5.555
19	4 43 11.20	2.0420	18 13 29.7	5.474
20	4 45 13.78	2.0440	18 18 55.7	5.393
21	4 47 16.48	2.0459	18 24 16.9	5.312
22	4 49 19.29	2.0478	18 29 33.1	5.229
23	4 51 22.22	2.0498	18 34 44.4	5.146
24	4 53 25.27	2.0518	N.18 39 50.7	5.063

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY, DECEMBER 1.			
	h m s	s	° ′ ″	″
0	4 53 25.27	2.0518	N.18 39 50.7	5.063

PHASES OF THE MOON.

			d	h	m
☾	Last Quarter . . .	Nov.	8	21	44.9
●	New Moon		15	20	36.5
☽	First Quarter		22	12	39.4
○	Full Moon		30	11	7.3

			d	h
☾	Apogee	Nov.	4	0.0
☾	Perigee		16	13.8

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	α Aquilæ	W.	102 4 2	3590	103 22 47	3603	104 41 18	3618	105 59 33	3633
	Fomalhaut	W.	68 36 21	3269	70 1 9	3269	71 25 57	3269	72 50 45	3270
	Saturn	W.	63 1 50	2984	64 32 23	2990	66 2 48	2995	67 33 7	3001
	α Pegasi	W.	54 17 50	3547	55 37 22	3534	56 57 9	3521	58 17 10	3510
	Aldebaran	E.	26 51 53	2996	25 21 35	3002	23 51 25	3008	22 21 23	3014
	Jupiter	E.	59 39 2	2991	58 8 38	2997	56 38 22	3002	55 8 12	3007
	Regulus	E.	106 59 24	2993	105 29 2	2998	103 58 46	3003	102 28 37	3009
2	Fomalhaut	W.	79 54 19	3279	81 18 55	3282	82 43 28	3284	84 7 58	3286
	Saturn	W.	75 3 3	3026	76 32 44	3030	78 2 20	3034	79 31 51	3039
	α Pegasi	W.	64 59 56	3470	66 20 53	3465	67 41 57	3460	69 3 6	3456
	Jupiter	E.	47 38 58	3032	46 9 25	3037	44 39 58	3041	43 10 36	3045
	Regulus	E.	94 59 29	3033	93 29 57	3038	92 0 31	3042	90 31 10	3046
3	Fomalhaut	W.	91 9 40	3302	92 33 49	3306	93 57 54	3309	95 21 55	3312
	Saturn	W.	86 58 10	3056	88 27 13	3059	89 56 12	3062	91 25 8	3064
	α Pegasi	W.	75 49 49	3442	77 11 18	3441	78 32 47	3439	79 54 19	3438
	α Arietis	W.	32 22 8	3613	33 40 28	3576	34 59 28	3543	36 19 5	3513
	Jupiter	E.	35 45 0	3064	34 16 6	3068	32 47 17	3071	31 18 32	3073
	Regulus	E.	83 5 34	3063	81 36 40	3066	80 7 49	3069	78 39 1	3071
	Mars	E.	117 13 7	3304	115 49 0	3306	114 24 56	3309	113 0 56	3312
4	Fomalhaut	W.	102 21 0	3331	103 44 36	3335	105 8 6	3339	106 31 32	3343
	Saturn	W.	98 49 9	3073	100 17 51	3073	101 46 33	3074	103 15 14	3075
	α Pegasi	W.	86 42 9	3438	88 3 43	3438	89 25 16	3438	90 46 49	3438
	α Arietis	W.	43 4 23	3405	44 26 34	3389	45 49 3	3374	47 11 49	3361
	Regulus	E.	71 15 41	3079	69 47 6	3080	68 18 33	3081	66 50 0	3082
	Mars	E.	106 1 30	3320	104 37 42	3321	103 13 56	3321	101 50 9	3322
5	Saturn	W.	110 38 38	3072	112 7 22	3070	113 36 8	3068	115 4 57	3066
	α Pegasi	W.	97 34 23	3444	98 55 50	3445	100 17 16	3446	101 38 40	3447
	α Arietis	W.	54 9 11	3305	55 33 17	3296	56 57 33	3286	58 22 1	3276
	Aldebaran	W.	20 44 53	3083	22 13 23	3081	23 41 56	3078	25 10 33	3075
	Regulus	E.	59 27 15	3078	57 58 39	3076	56 30 0	3074	55 1 19	3072
	Mars	E.	94 51 13	3318	93 27 23	3316	92 3 30	3314	90 39 35	3312
	Sun	E.	132 56 21	3493	131 35 49	3490	130 15 14	3487	128 54 35	3483
6	α Arietis	W.	65 26 57	3233	66 52 27	3224	68 18 7	3215	69 43 58	3207
	Aldebaran	W.	32 34 37	3055	34 3 41	3050	35 32 52	3045	37 2 9	3039
	Regulus	E.	47 37 2	3055	46 7 57	3050	44 38 46	3045	43 9 29	3039
	Mars	E.	83 39 5	3293	82 14 45	3288	80 50 20	3282	79 25 48	3276
	Sun	E.	122 10 11	3460	120 49 2	3454	119 27 46	3447	118 6 23	3441
7	α Arietis	W.	76 55 52	3161	78 22 48	3151	79 49 56	3141	81 17 16	3130
	Aldebaran	W.	44 30 33	3004	46 0 40	2996	47 30 58	2987	49 1 27	2978
	Regulus	E.	35 41 13	3006	34 11 8	2999	32 40 54	2991	31 10 30	2982
	Mars	E.	72 21 17	3242	70 55 57	3233	69 30 27	3224	68 4 46	3214
	Sun	E.	111 17 28	3401	109 55 13	3392	108 32 48	3382	107 10 12	3372
8	α Arietis	W.	88 37 9	3076	90 5 47	3064	91 34 40	3052	93 3 48	3041
	Aldebaran	W.	56 36 52	2927	58 8 37	2915	59 40 37	2903	61 12 52	2891
	Jupiter	W.	24 1 22	2928	25 33 5	2915	27 5 5	2901	28 37 22	2888

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	α Aquilæ	W.	107 17 33	3649	108 35 15	3664	109 52 40	3682	111 9 47	3700
	Fomalhaut	W.	74 15 31	3271	75 40 16	3273	77 4 59	3275	78 29 40	3277
	Saturn	W.	69 3 19	3006	70 33 24	3011	72 3 23	3016	73 33 16	3021
	α Pegasi	W.	59 37 23	3500	60 57 47	3491	62 18 21	3483	63 39 5	3476
	Aldebaran	E.	20 51 28	3020	19 21 41	3027	17 52 1	3034	16 22 30	3041
	Jupiter	E.	53 38 8	3013	52 8 11	3018	50 38 21	3023	49 8 37	3027
	Regulus	E.	100 58 35	3014	99 28 39	3019	97 58 50	3024	96 29 7	3028
2	Fomalhaut	W.	85 32 26	3289	86 56 50	3292	88 21 10	3296	89 45 27	3299
	Saturn	W.	81 1 16	3043	82 30 36	3046	83 59 52	3050	85 29 3	3053
	α Pegasi	W.	70 24 20	3453	71 45 37	3449	73 6 58	3446	74 28 22	3444
	Jupiter	E.	41 41 19	3049	40 12 7	3053	38 43 0	3057	37 13 58	3060
	Regulus	E.	89 1 53	3050	87 32 42	3053	86 3 35	3056	84 34 32	3060
3	Fomalhaut	W.	96 45 53	3316	98 9 46	3319	99 33 35	3323	100 57 20	3327
	Saturn	W.	92 54 2	3067	94 22 52	3069	95 51 40	3071	97 20 25	3072
	α Pegasi	W.	81 15 52	3438	82 37 26	3438	83 59 0	3437	85 20 35	3438
	α Arietis	W.	37 39 15	3487	38 59 55	3463	40 21 1	3441	41 42 31	3422
	Jupiter	E.	29 49 50	3076	28 21 11	3079	26 52 36	3082	25 24 5	3085
	Regulus	E.	77 10 16	3073	75 41 34	3075	74 12 55	3077	72 44 17	3078
	Mars	E.	111 36 58	3314	110 13 3	3316	108 49 10	3318	107 25 19	3319
4	Fomalhaut	W.	107 54 54	3348	109 18 10	3352	110 41 21	3357	112 4 27	3361
	Saturn	W.	104 43 54	3075	106 12 34	3075	107 41 14	3074	109 9 55	3073
	α Pegasi	W.	92 8 22	3439	93 29 54	3440	94 51 24	3441	96 12 54	3442
	α Arietis	W.	48 34 50	3349	49 58 5	3337	51 21 34	3325	52 45 16	3314
	Regulus	E.	65 21 28	3082	63 52 56	3081	62 24 23	3080	60 55 50	3079
	Mars	E.	100 26 23	3322	99 2 37	3321	97 38 50	3320	96 15 2	3319
5	Saturn	W.	116 33 48	3063	118 2 43	3060	119 31 41	3056	121 0 44	3052
	α Pegasi	W.	103 0 3	3449	104 21 24	3451	105 42 42	3454	107 3 58	3457
	α Arietis	W.	59 46 40	3268	61 11 28	3259	62 36 27	3250	64 1 37	3242
	Aldebaran	W.	26 39 13	3072	28 7 57	3069	29 36 45	3065	31 5 38	3060
	Regulus	E.	53 32 35	3069	52 3 48	3066	50 34 57	3063	49 6 2	3059
	Mars	E.	89 15 37	3309	87 51 36	3305	86 27 30	3301	85 3 20	3297
	Sun	E.	127 33 52	3479	126 13 4	3475	124 52 12	3470	123 31 14	3465
6	α Arietis	W.	71 9 59	3198	72 36 11	3189	74 2 33	3179	75 29 7	3170
	Aldebaran	W.	38 31 34	3033	40 1 6	3026	41 30 46	3019	43 0 35	3012
	Regulus	E.	41 40 5	3034	40 10 34	3028	38 40 56	3021	37 11 9	3014
	Mars	E.	78 1 9	3270	76 36 23	3264	75 11 30	3257	73 46 28	3249
	Sun	E.	116 44 53	3434	115 23 15	3426	114 1 29	3418	112 39 33	3410
7	α Arietis	W.	82 44 49	3120	84 12 34	3109	85 40 32	3098	87 8 44	3087
	Aldebaran	W.	50 32 7	2969	52 2 59	2959	53 34 3	2948	55 5 21	2938
	Regulus	E.	29 39 55	2973	28 9 9	2964	26 38 11	2954	25 7 1	2945
	Mars	E.	66 38 54	3205	65 12 51	3195	63 46 36	3184	62 20 8	3173
	Sun	E.	105 47 24	3362	104 24 24	3351	103 1 12	3339	101 37 46	3327
8	α Arietis	W.	94 33 10	3029	96 2 47	3016	97 32 40	3004	99 2 48	2991
	Aldebaran	W.	62 45 23	2877	64 18 11	2864	65 51 15	2851	67 24 37	2837
	Jupiter	W.	30 9 56	2874	31 42 48	2860	33 15 58	2845	34 49 27	2831

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
8	Mars	E.	60 53 26	3162	59 26 31	3150	57 59 22	3138	56 31 58	3125
	Sun	E.	100 14 7	3315	98 50 13	3302	97 26 5	3289	96 1 41	3276
9	α Arietis	W.	100 33 12	2978	102 3 52	2965	103 34 48	2952	105 6 0	2939
	Aldebaran	W.	68 58 17	2822	70 32 16	2808	72 6 34	2792	73 41 12	2777
	Jupiter	W.	36 23 14	2816	37 57 21	2801	39 31 48	2785	41 6 36	2769
	Mars	E.	49 10 57	3056	47 41 53	3041	46 12 31	3025	44 42 50	3009
	Sun	E.	88 55 35	3202	87 29 28	3186	86 3 2	3169	84 36 16	3153
10	Aldebaran	W.	81 39 36	2695	83 16 23	2677	84 53 34	2659	86 31 8	2641
	Jupiter	W.	49 5 56	2685	50 42 56	2667	52 20 20	2649	53 58 8	2631
	Pollux	W.	38 8 10	2800	39 42 38	2775	41 17 38	2751	42 53 10	2728
	Mars	E.	37 9 27	2929	35 37 44	2912	34 5 41	2896	32 33 17	2879
	Sun	E.	77 17 18	3064	75 48 24	3045	74 19 8	3026	72 49 28	3007
11	Aldebaran	W.	94 45 10	2549	96 25 14	2530	98 5 45	2511	99 46 42	2492
	Jupiter	W.	62 13 24	2538	63 53 44	2519	65 34 31	2500	67 15 45	2481
	Pollux	W.	50 58 27	2616	52 37 1	2594	54 16 4	2572	55 55 38	2551
	Sun	E.	65 15 7	2909	63 43 0	2889	62 10 28	2869	60 37 30	2849
12	Aldebaran	W.	108 18 12	2397	110 1 51	2378	111 45 58	2359	113 30 32	2341
	Jupiter	W.	75 48 40	2384	77 32 37	2365	79 17 2	2346	81 1 54	2328
	Pollux	W.	64 20 48	2445	66 3 18	2426	67 46 16	2405	69 29 43	2386
	Sun	E.	52 46 12	2750	51 10 39	2731	49 34 40	2712	47 58 16	2694
13	Jupiter	W.	89 53 1	2236	91 40 35	2219	93 28 34	2202	95 16 59	2186
	Pollux	W.	78 13 58	2291	80 0 10	2273	81 46 49	2256	83 33 54	2239
	Sun	E.	39 50 11	2607	38 11 24	2591	36 32 16	2575	34 52 47	2561
18	Sun	W.	30 32 58	2392	32 16 44	2397	34 0 24	2403	35 43 55	2410
	Saturn	E.	72 50 41	2036	70 58 3	2045	69 5 39	2055	67 13 31	2066
	α Pegasi	E.	85 40 34	2398	83 56 56	2410	82 13 36	2423	80 30 34	2438
19	Sun	W.	44 18 19	2463	46 0 24	2476	47 42 12	2489	49 23 41	2502
	Saturn	E.	57 57 12	2127	56 6 54	2141	54 16 56	2155	52 27 20	2169
	α Pegasi	E.	72 1 13	2531	70 20 43	2555	68 40 46	2580	67 1 23	2605
	α Arietis	E.	115 0 6	2305	113 14 14	2314	111 28 35	2324	109 43 10	2334
20	Sun	W.	57 46 0	2580	59 25 22	2596	61 4 22	2613	62 42 59	2630
	Saturn	E.	43 24 56	2246	41 37 37	2262	39 50 42	2279	38 4 11	2295
	α Pegasi	E.	58 54 2	2762	57 18 44	2800	55 44 16	2840	54 10 40	2882
	α Arietis	E.	101 0 12	2397	99 16 33	2412	97 33 15	2426	95 50 18	2442
21	Sun	W.	70 50 14	2718	72 26 30	2736	74 2 22	2753	75 37 51	2771
	Saturn	E.	29 17 41	2380	27 33 37	2397	25 49 58	2414	24 6 43	2431
	α Arietis	E.	87 21 11	2525	85 40 32	2543	84 0 18	2560	82 20 28	2578
	Aldebaran	E.	119 11 11	2375	117 27 0	2391	115 43 12	2408	113 59 48	2424
22	Sun	W.	83 29 26	2860	85 2 36	2878	86 35 23	2895	88 7 48	2912
	α Arietis	E.	74 7 36	2672	72 30 19	2691	70 53 27	2710	69 17 1	2730
	Aldebaran	E.	105 28 44	2507	103 47 41	2524	102 7 1	2540	100 26 43	2556

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
8	Mars	E.	55 4 19	3112	53 36 24	3098	52 8 12	3084	50 39 43	3070
	Sun	E.	94 37 2	3262	93 12 6	3248	91 46 54	3233	90 21 24	3217
9	α Arietis	W.	106 37 29	2927	108 9 14	2913	109 41 16	2900	111 13 35	2886
	Aldebaran	W.	75 16 10	2761	76 51 29	2745	78 27 9	2729	80 3 11	2712
	Jupiter	W.	42 41 44	2753	44 17 14	2737	45 53 5	2719	47 29 19	2702
	Mars	E.	43 12 49	2994	41 42 29	2978	40 11 49	2962	38 40 48	2946
	Sun	E.	83 9 11	3136	81 41 45	3119	80 13 58	3101	78 45 49	3082
10	Aldebaran	W.	88 9 7	2623	89 47 30	2605	91 26 18	2587	93 5 31	2568
	Jupiter	W.	55 36 21	2612	57 14 59	2595	58 54 1	2576	60 33 29	2557
	Pollux	W.	44 29 13	2705	46 5 46	2683	47 42 49	2660	49 20 23	2638
	Mars	E.	31 0 31	2862	29 27 24	2846	27 53 55	2830	26 20 6	2815
	Sun	E.	71 19 24	2988	69 48 57	2969	68 18 5	2949	66 46 48	2929
11	Aldebaran	W.	101 28 6	2473	103 9 57	2454	104 52 15	2435	106 35 0	2416
	Jupiter	W.	68 57 25	2461	70 39 33	2442	72 22 8	2423	74 5 10	2403
	Pollux	W.	57 35 41	2529	59 16 14	2508	60 57 16	2487	62 38 47	2466
	Sun	E.	59 4 6	2829	57 30 16	2809	55 56 1	2789	54 21 19	2770
12	Aldebaran	W.	115 15 32	2322	117 1 0	2304	118 46 54	2285	120 33 15	2267
	Jupiter	W.	82 47 13	2309	84 33 0	2291	86 19 13	2272	88 5 54	2254
	Pollux	W.	71 13 38	2366	72 58 2	2347	74 42 53	2328	76 28 12	2309
	Sun	E.	46 21 28	2675	44 44 14	2657	43 6 36	2640	41 28 35	2623
13	Jupiter	W.	97 5 48	2169	98 55 2	2153	100 44 40	2138	102 34 41	2124
	Pollux	W.	85 21 23	2223	87 9 17	2207	88 57 34	2192	90 46 14	2176
	Sun	E.	33 12 59	2549	31 32 54	2538	29 52 34	2527	28 11 59	2518
18	Sun	W.	37 27 15	2419	39 10 23	2429	40 53 17	2439	42 35 56	2450
	Saturn	E.	65 21 39	2077	63 30 5	2089	61 38 48	2101	59 47 50	2114
	α Pegasi	E.	78 47 53	2454	77 5 35	2471	75 23 41	2490	73 42 13	2510
19	Sun	W.	51 4 51	2517	52 45 40	2533	54 26 8	2548	56 6 15	2564
	Saturn	E.	50 38 6	2184	48 49 14	2199	47 0 45	2214	45 12 39	2230
	α Pegasi	E.	65 22 35	2632	63 44 24	2663	62 6 54	2694	60 30 6	2727
	α Arietis	E.	107 58 0	2346	106 13 7	2357	104 28 30	2370	102 44 11	2383
20	Sun	W.	64 21 13	2648	65 59 3	2665	67 36 30	2682	69 13 34	2700
	Saturn	E.	36 18 4	2311	34 32 21	2328	32 47 3	2346	31 2 10	2362
	α Pegasi	E.	52 37 57	2927	51 6 12	2976	49 35 29	3028	48 5 51	3082
	α Arietis	E.	94 7 43	2458	92 25 30	2474	90 43 41	2490	89 2 14	2507
21	Sun	W.	77 12 57	2789	78 47 39	2808	80 21 57	2825	81 55 53	2842
	Saturn	E.	22 23 53	2448	20 41 27	2465	18 59 25	2483	17 17 48	2502
	α Arietis	E.	80 41 3	2596	79 2 3	2615	77 23 29	2634	75 45 20	2653
	Aldebaran	E.	112 16 48	2441	110 34 12	2458	108 52 0	2474	107 10 10	2491
22	Sun	W.	89 39 52	2929	91 11 34	2946	92 42 54	2962	94 13 54	2979
	α Arietis	E.	67 41 1	2750	66 5 28	2771	64 30 22	2791	62 55 43	2812
	Aldebaran	E.	98 46 47	2572	97 7 13	2587	95 28 0	2602	93 49 8	2617

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
23	Sun	W.	95 44 33	2995	97 14 51	3011	98 44 50	3027	100 14 29	3042
	a Aquilæ	W.	46 41 45	3849	47 55 57	3802	49 10 57	3761	50 26 40	3724
	a Arietis	E.	61 21 30	2833	59 47 45	2855	58 14 28	2877	56 41 40	2899
	Aldebaran	E.	92 10 36	2632	90 32 25	2647	88 54 34	2662	87 17 3	2676
24	Sun	W.	107 38 6	3116	109 5 56	3130	110 33 29	3143	112 0 46	3157
	a Aquilæ	W.	56 53 32	3598	58 12 9	3582	59 31 3	3567	60 50 14	3555
	a Arietis	E.	49 4 59	3021	47 35 12	3048	46 5 59	3077	44 37 21	3107
	Aldebaran	E.	79 14 4	2743	77 38 21	2756	76 2 56	2768	74 27 46	2780
	Jupiter	E.	110 58 1	2718	109 21 45	2729	107 45 44	2741	106 9 59	2753
25	Sun	W.	119 13 17	3220	120 39 3	3231	122 4 35	3242	123 29 54	3253
	a Aquilæ	W.	67 28 53	3516	68 48 59	3512	70 9 9	3509	71 29 23	3507
	Saturn	W.	23 15 29	2845	24 48 58	2855	26 22 14	2865	27 55 18	2875
	Aldebaran	E.	66 35 45	2836	65 2 4	2846	63 28 36	2856	61 55 21	2866
	Jupiter	E.	98 15 0	2808	96 40 43	2818	95 6 39	2828	93 32 47	2838
	Pollux	E.	110 37 25	2880	109 4 41	2890	107 32 9	2899	105 59 49	2908
26	*a* Aquilæ	W.	78 10 49	3509	79 31 3	3511	80 51 15	3514	82 11 24	3517
	Saturn	W.	35 37 37	2919	37 9 32	2927	38 41 16	2935	40 12 50	2942
	Aldebaran	E.	54 12 8	2911	52 40 3	2919	51 8 9	2927	49 36 25	2935
	Jupiter	E.	85 46 28	2881	84 13 45	2889	82 41 12	2897	81 8 49	2904
	Pollux	E.	98 20 55	2950	96 49 40	2958	95 18 34	2965	93 47 38	2973
27	*a* Aquilæ	W.	88 51 3	3541	90 10 41	3547	91 30 13	3555	92 49 37	3562
	Fomalhaut	W.	54 29 38	3325	55 53 20	3319	57 17 10	3313	58 41 6	3308
	Saturn	W.	47 48 24	2977	49 19 5	2983	50 49 39	2989	52 20 6	2995
	a Pegasi	W.	41 30 52	3877	42 44 35	3833	43 59 3	3793	45 14 13	3756
	Aldebaran	E.	42 0 0	2969	40 29 9	2975	38 58 26	2981	37 27 50	2988
	Jupiter	E.	73 29 9	2938	71 57 38	2944	70 26 15	2949	68 54 59	2954
	Pollux	E.	86 15 13	3007	84 45 9	3013	83 15 13	3019	81 45 24	3025
28	*a* Aquilæ	W.	99 24 29	3606	100 42 57	3616	102 1 14	3627	103 19 19	3639
	Fomalhaut	W.	65 41 58	3293	67 6 18	3291	68 30 41	3289	69 55 5	3288
	Saturn	W.	59 50 36	3021	61 20 23	3025	62 50 5	3029	64 19 42	3033
	a Pegasi	W.	51 38 20	3624	52 56 28	3605	54 14 57	3587	55 33 45	3571
	Aldebaran	E.	29 56 37	3014	28 26 42	3019	26 56 53	3024	25 27 10	3029
	Jupiter	E.	61 20 16	2980	59 49 38	2985	58 19 6	2989	56 48 39	2992
	Pollux	E.	74 18 8	3053	72 49 1	3058	71 20 0	3063	69 51 5	3068
29	Fomalhaut	W.	76 57 20	3287	78 21 47	3287	79 46 14	3288	81 10 40	3288
	Saturn	W.	71 46 33	3051	73 15 42	3054	74 44 48	3057	76 13 50	3060
	a Pegasi	W.	62 11 39	3511	63 31 51	3502	64 52 13	3494	66 12 44	3487
	Jupiter	E.	49 17 33	3010	47 47 33	3013	46 17 37	3016	44 47 44	3019
	Pollux	E.	62 28 0	3091	60 59 40	3096	59 31 25	3101	58 3 16	3105
30	Fomalhaut	W.	88 12 36	3294	89 36 54	3295	91 1 11	3297	92 25 26	3299
	Saturn	W.	83 38 11	3072	85 6 55	3074	86 35 36	3075	88 4 16	3077
	a Pegasi	W.	72 57 7	3459	74 18 17	3455	75 39 31	3452	77 0 49	3449
	Jupiter	E.	37 19 11	3031	35 49 37	3034	34 20 6	3036	32 50 38	3038
	Pollux	E.	50 43 52	3128	49 16 16	3132	47 48 45	3138	46 21 21	3143
	Regulus	E.	86 13 46	3062	84 44 50	3064	83 15 56	3065	81 47 4	3066

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	XVIII^{h}	P. L. of Diff.	XXI^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
23	SUN	W.	101 43 50	3058	103 12 51	3073	104 41 34	3087	106 9 59	3102
	α Aquilæ	W.	51 43 2	3692	52 59 58	3664	54 17 23	3639	55 35 15	3617
	α Arietis	E.	55 9 20	2922	53 37 29	2946	52 6 8	2970	50 35 18	2995
	Aldebaran	E.	85 39 51	2690	84 2 57	2704	82 26 22	2717	80 50 4	2730
24	SUN	W.	113 27 47	3170	114 54 32	3183	116 21 2	3195	117 47 17	3208
	α Aquilæ	W.	62 9 38	3545	63 29 13	3535	64 48 58	3527	66 8 52	3521
	α Arietis	E.	43 9 20	3138	41 41 57	3172	40 15 14	3208	38 49 14	3247
	Aldebaran	E.	72 52 52	2792	71 18 14	2803	69 43 50	2814	68 9 40	2825
	JUPITER	E.	104 34 29	2765	102 59 15	2776	101 24 16	2787	99 49 31	2798
25	SUN	W.	124 55 0	3265	126 19 53	3276	127 44 33	3286	129 9 1	3295
	α Aquilæ	W.	72 49 40	3506	74 9 57	3506	75 30 15	3506	76 50 33	3507
	SATURN	W.	29 28 9	2884	31 0 48	2893	32 33 15	2902	34 5 31	2910
	Aldebaran	E.	60 22 19	2876	58 49 29	2885	57 16 51	2894	55 44 24	2902
	JUPITER	E.	91 59 8	2847	90 25 41	2856	88 52 26	2865	87 19 22	2873
	Pollux	E.	104 27 40	2917	102 55 43	2925	101 23 56	2934	99 52 20	2942
26	α Aquilæ	W.	83 31 29	3521	84 51 30	3525	86 11 27	3530	87 31 18	3535
	SATURN	W.	41 44 15	2950	43 15 31	2957	44 46 37	2964	46 17 35	2971
	Aldebaran	E.	48 4 50	2942	46 33 24	2949	45 2 8	2956	43 31 0	2962
	JUPITER	E.	79 36 35	2911	78 4 31	2918	76 32 35	2925	75 0 48	2931
	Pollux	E.	92 16 51	2980	90 46 14	2987	89 15 45	2994	87 45 25	3001
27	α Aquilæ	W.	94 8 53	3569	95 28 1	3577	96 47 0	3586	98 5 50	3596
	Fomalhaut	W.	60 5 8	3304	61 29 15	3301	62 53 26	3298	64 17 40	3294
	SATURN	W.	53 50 25	3000	55 20 37	3005	56 50 43	3010	58 20 43	3016
	α Pegasi	W.	46 30 1	3724	47 46 23	3695	49 3 15	3669	50 20 35	3645
	Aldebaran	E.	35 57 22	2993	34 27 1	2998	32 56 46	3004	31 26 38	3009
	JUPITER	E.	67 23 49	2960	65 52 46	2965	64 21 50	2970	62 51 0	2975
	Pollux	E.	80 15 43	3031	78 46 9	3037	77 16 42	3042	75 47 22	3047
28	α Aquilæ	W.	104 37 11	3652	105 54 50	3665	107 12 14	3678	108 29 24	3692
	Fomalhaut	W.	71 19 31	3288	72 43 57	3287	74 8 24	3286	75 32 52	3286
	SATURN	W.	65 49 14	3037	67 18 41	3041	68 48 3	3045	70 17 20	3048
	α Pegasi	W.	56 52 51	3557	58 12 12	3545	59 31 48	3532	60 51 37	3521
	Aldebaran	E.	23 57 32	3034	22 28 1	3038	20 58 35	3043	19 29 15	3047
	JUPITER	E.	55 18 16	2996	53 47 58	3000	52 17 46	3004	50 47 38	3007
	Pollux	E.	68 22 16	3073	66 53 34	3078	65 24 57	3082	63 56 26	3087
29	Fomalhaut	W.	82 35 6	3289	83 59 31	3290	85 23 54	3291	86 48 16	3293
	SATURN	W.	77 42 48	3063	79 11 43	3065	80 40 35	3068	82 9 24	3069
	α Pegasi	W.	67 33 23	3480	68 54 10	3474	70 15 3	3469	71 36 2	3464
	JUPITER	E.	43 17 55	3022	41 48 9	3025	40 18 27	3027	38 48 48	3029
	Pollux	E.	56 35 12	3110	55 7 14	3114	53 39 21	3119	52 11 34	3123
30	Fomalhaut	W.	93 49 39	3301	95 13 49	3304	96 37 56	3306	98 2 1	3308
	SATURN	W.	89 32 54	3078	91 1 30	3079	92 30 5	3081	93 58 38	3082
	α Pegasi	W.	78 22 11	3446	79 43 35	3444	81 5 2	3442	82 26 32	3440
	JUPITER	E.	31 21 12	3040	29 51 49	3042	28 22 28	3044	26 53 10	3045
	Pollux	E.	44 54 3	3148	43 26 51	3154	41 59 47	3160	40 32 50	3166
	Regulus	E.	80 18 13	3068	78 49 24	3069	77 20 37	3070	75 51 51	3071

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Apparent Declination.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Sat.	1	16 26 34.92	10.777	S. 21 42 51.0	− 23.98	16 15.30	70.20	11 7.01	0.917
SUN.	2	16 30 53.88	10.804	21 52 14.1	22.94	16 15.46	70.29	10 44.66	0.944
Mon.	3	16 35 13.48	10.830	22 1 12.1	21.88	16 15.61	70.37	10 21.68	0.970
Tues.	4	16 39 33.71	10.855	22 9 44.7	− 20.81	16 15.75	70.45	9 58.08	0.996
Wed.	5	16 43 54.55	10.880	22 17 51.5	19.74	16 15.89	70.53	9 33.86	1.021
Thur.	6	16 48 15.96	10.904	22 25 32.4	18.66	16 16.02	70.60	9 9.07	1.045
Frid.	7	16 52 37.94	10.927	22 32 47.3	− 17.56	16 16.14	70.67	8 43.72	1.068
Sat.	8	16 57 0.44	10.949	22 39 35.5	16.45	16 16.26	70.74	8 17.85	1.089
SUN.	9	17 1 23.46	10.970	22 45 57.2	15.34	16 16.38	70.81	7 51.46	1.109
Mon.	10	17 5 46.95	10.989	22 51 52.2	− 14.22	16 16.49	70.87	7 24.59	1.129
Tues.	11	17 10 10.90	11.007	22 57 19.9	13.09	16 16.59	70.93	6 57.27	1.147
Wed.	12	17 14 35.29	11.024	23 2 20.6	11.95	16 16.70	70.98	6 29.53	1.164
Thur.	13	17 19 0.05	11.040	23 6 53.8	− 10.81	16 16.80	71.03	6 1.40	1.179
Frid.	14	17 23 25.16	11.054	23 10 59.5	9.66	16 16.90	71.07	5 32.92	1.193
Sat.	15	17 27 50.60	11.066	23 14 37.6	8.51	16 16.99	71.11	5 4.12	1.206
SUN.	16	17 32 16.32	11.077	23 17 47.8	− 7.35	16 17.08	71.14	4 35.04	1.217
Mon.	17	17 36 42.27	11.086	23 20 30.0	6.18	16 17.17	71.17	4 5.72	1.226
Tues.	18	17 41 8.42	11.093	23 22 44.1	5.00	16 17.25	71.20	3 36.21	1.233
Wed.	19	17 45 34.73	11.099	23 24 30.2	− 3.82	16 17.33	71.22	3 6.54	1.239
Thur.	20	17 50 1.17	11.104	23 25 47.9	2.65	16 17.40	71.24	2 36.74	1.244
Frid.	21	17 54 27.70	11.107	23 26 37.5	1.47	16 17.47	71.25	2 6.85	1.247
Sat.	22	17 58 54.28	11.108	23 26 58.7	− 0.29	16 17.54	71.26	1 36.90	1.248
SUN.	23	18 3 20.88	11.108	23 26 51.6	+ 0.89	16 17.61	71.26	1 6.95	1.248
Mon.	24	18 7 47.47	11.107	23 26 16.1	2.07	16 17.67	71.26	0 37.00	1.247
Tues.	25	18 12 14.00	11.104	23 25 12.4	+ 3.24	16 17.72	71.26	0 7.11	1.244
Wed.	26	18 16 40.45	11.100	23 23 40.4	4.42	16 17.76	71.25	0 22.71	1.240
Thur.	27	18 21 6.79	11.095	23 21 40.1	5.60	16 17.80	71.23	0 52.42	1.235
Frid.	28	18 25 33.00	11.088	23 19 11.6	+ 6.77	16 17.83	71.21	1 21.97	1.228
Sat.	29	18 29 59.03	11.080	23 16 15.1	7.94	16 17.86	71.18	1 51.36	1.220
SUN.	30	18 34 24.85	11.071	23 12 50.5	9.10	16 17.88	71.15	2 20.54	1.211
Mon.	31	18 38 50.43	11.061	23 8 58.0	10.26	16 17.88	71.12	2 49.50	1.201
Tues.	32	18 43 15.76	11.050	S. 23 4 37.7	+ 11.41	16 17.88	71.08	3 18.19	1.190

Note.—The mean time of semidiameter passing the meridian may be found by subtracting $0^s.19$ from the sidereal time. The sign − prefixed to the hourly change of declination indicates that south declinations are increasing; the sign + indicates that south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be Added to / Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.			
		h m s	s	° ′ ″	″	m s	s	h m s
Sat.	1	16 26 36.91	10.774	S. 21 42 55.4	−23.97	11 6.84	0.917	16 37 43.75
SUN.	2	16 30 55.81	10.801	21 52 18.2	22.93	10 44.49	0.944	16 41 40.30
Mon.	3	16 35 15.35	10.827	22 1 15.9	21.87	10 21.51	0.970	16 45 36.86
Tues.	4	16 39 35.51	10.852	22 9 48.2	−20.80	9 57.91	0.996	16 49 33.42
Wed.	5	16 43 56.28	10.877	22 17 54.7	19.73	9 33.70	1.021	16 53 29.98
Thur.	6	16 48 17.62	10.901	22 25 35.3	18.65	9 8.91	1.045	16 57 26.53
Frid.	7	16 52 39.52	10.924	22 32 49.8	−17.55	8 43.57	1.068	17 1 23.09
Sat.	8	16 57 1.95	10.946	22 39 37.8	16.44	8 17.70	1.089	17 5 19.65
SUN.	9	17 1 24.89	10.966	22 45 59.2	15.33	7 51.31	1.109	17 9 16.20
Mon.	10	17 5 48.31	10.985	22 51 53.9	−14.21	7 24.45	1.129	17 13 12.76
Tues.	11	17 10 12.18	11.003	22 57 21.4	13.08	6 57.14	1.147	17 17 9.32
Wed.	12	17 14 36.48	11.020	23 2 21.9	11.94	6 29.40	1.164	17 21 5.88
Thur.	13	17 19 1.15	11.036	23 6 54.9	−10.80	6 1.28	1.179	17 25 2.43
Frid.	14	17 23 26.18	11.050	23 11 0.4	9.65	5 32.81	1.193	17 28 58.99
Sat.	15	17 27 51.53	11.062	23 14 38.3	8.50	5 4.02	1.206	17 32 55.55
SUN.	16	17 32 17.16	11.073	23 17 48.3	− 7.34	4 34.95	1.217	17 36 52.11
Mon.	17	17 36 43.02	11.082	23 20 30.4	6.17	4 5.64	1.226	17 40 48.66
Tues.	18	17 41 9.08	11.089	23 22 44.4	5.00	3 36.14	1.233	17 44 45.22
Wed.	19	17 45 35.30	11.095	23 24 30.4	− 3.82	3 6.48	1.239	17 48 41.78
Thur.	20	17 50 1.65	11.100	23 25 48.0	2.65	2 36.69	1.244	17 52 38.34
Frid.	21	17 54 28.09	11.103	23 26 37.5	1.47	2 6.81	1.247	17 56 34.90
Sat.	22	17 58 54.58	11.104	23 26 58.7	− 0.29	1 36.87	1.248	18 0 31.45
SUN.	23	18 3 21.08	11.104	23 26 51.6	+ 0.89	1 6.93	1.248	18 4 28.01
Mon.	24	18 7 47.58	11.103	23 26 16.1	2.07	0 36.99	1.247	18 8 24.57
Tues.	25	18 12 14.02	11.100	23 25 12.4	+ 3.24	0 7.11	1.244	18 12 21.13
Wed.	26	18 16 40.38	11.096	23 23 40.4	4.42	0 22.70	1.240	18 16 17.68
Thur.	27	18 21 6.64	11.091	23 21 40.2	5.60	0 52.40	1.235	18 20 14.24
Frid.	28	18 25 32.74	11.084	23 19 11.8	+ 6.77	1 21.94	1.228	18 24 10.80
Sat.	29	18 29 58.68	11.076	23 16 15.4	7.94	1 51.32	1.220	18 28 7.36
SUN.	30	18 34 24.41	11.067	23 12 50.9	9.10	2 20.49	1.211	18 32 3.92
Mon.	31	18 38 49.91	11.057	23 8 58.5	10.26	2 49.44	1.201	18 36 0.47
Tues.	32	18 43 15.15	11.046	S. 23 4 38.3	+11.41	3 18.12	1.190	18 39 57.03

Note.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign − prefixed to the hourly change of declination indicates that south declinations are increasing; the sign + indicates that south declinations are decreasing.

Diff. for 1 Hour,
+ 9ˢ.8565.
(Table III.)

AT GREENWICH MEAN NOON.								
		THE SUN'S						
Day of the Month.	Day of the Year.	TRUE LONGITUDE. λ	TRUE LONGITUDE. λ′	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	335	248 24 12.3	23 41.5	152.04	— 0.43	9.993 8069	– 28.7	7 21 3.80
2	336	249 25 1.9	24 30.9	152.09	0.33	9.993 7392	27.7	7 17 7.89
3	337	250 25 52.6	25 21.5	152.14	0.22	9.993 6740	26.7	7 13 11.98
4	338	251 26 44.6	26 13.4	152.19	— 0.09	9.993 6112	– 25.7	7 9 16.06
5	339	252 27 37.9	27 6.5	152.24	+ 0.04	9.993 5508	24.7	7 5 20.15
6	340	253 28 32.3	28 0.7	152.29	0.17	9.993 4926	23.7	7 1 24.24
7	341	254 29 28.0	28 56.2	152.35	+ 0.31	9.993 4367	– 22.8	6 57 28.33
8	342	255 30 25.0	29 53.0	152.40	0.43	9.993 3831	21.9	6 53 32.42
9	343	256 31 23.1	30 51.0	152.45	0.52	9.993 3315	21.1	6 49 36.51
10	344	257 32 22.5	31 50.2	152.50	+ 0.59	9.993 2819	– 20.3	6 45 40.60
11	345	258 33 23.0	32 50.5	152.54	0.64	9.993 2342	19.5	6 41 44.68
12	346	259 34 24.6	33 52.0	152.59	0.65	9.993 1881	18.8	6 37 48.77
13	347	260 35 27.3	34 54.5	152.63	+ 0.63	9.993 1437	– 18.2	6 33 52.86
14	348	261 36 30.9	35 57.9	152.67	0.58	9.993 1000	17.6	6 29 56.95
15	349	262 37 35.3	37 2.2	152.70	0.51	9.993 0595	17.0	6 26 1.04
16	350	263 38 40.5	38 7.2	152.73	+ 0.40	9.993 0195	– 16.4	6 22 5.13
17	351	264 39 46.3	39 12.8	152.75	0.28	9.992 9810	15.7	6 18 9.22
18	352	265 40 52.5	40 18.8	152.77	0.15	9.992 9439	15.1	6 14 13.30
19	353	266 41 59.1	41 25.2	152.78	+ 0.02	9.992 9086	– 14.4	6 10 17.39
20	354	267 43 6.1	42 32.0	152.79	— 0.10	9.992 8750	13.6	6 6 21.48
21	355	268 44 13.2	43 39.0	152.80	0.21	9.992 8433	12.8	6 2 25.57
22	356	269 45 20.5	44 46.1	152.81	— 0.29	9.992 8137	– 11.9	5 58 29.66
23	357	270 46 28.0	45 53.4	152.81	0.35	9.992 7862	10.9	5 54 33.74
24	358	271 47 35.6	47 0.9	152.82	0.39	9.992 7612	9.9	5 50 37.83
25	359	272 48 43.3	48 8.4	152.82	— 0.39	9.992 7385	– 8.9	5 46 41.92
26	360	273 49 51.1	49 16.0	152.83	0.37	9.992 7184	7.8	5 42 46.01
27	361	274 50 59.0	50 23.7	152.83	0.32	9.992 7009	6.7	5 38 50.10
28	362	275 52 6.9	51 31.5	152.83	— 0.26	9.992 6862	– 5.6	5 34 54.18
29	363	276 53 15.0	52 39.4	152.84	0.17	9.992 6741	4.4	5 30 58.27
30	364	277 54 23.2	53 47.4	152.84	— 0.05	9.992 6649	3.3	5 27 2.36
31	365	278 55 31.5	54 55.5	152.85	+ 0.08	9.992 6584	2.1	5 23 6.45
32	366	279 56 39.9	56 3.7	152.85	+ 0.21	9.992 6547	– 0.9	5 19 10.54

NOTE.—The longitudes in the column λ are referred to the true equinox of their own date, while those in the column λ′ are referred to the mean equinox of the beginning of the Besselian fictitious year.

Diff. for 1 Hour, — 9s.8296. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER.		HORIZONTAL PARALLAX.				UPPER TRANSIT.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	14 43.5	14 43.5	53 56.8	− 0.05	53 56.7	+ 0.05	12 39.7	1.97	15.1
2	14 43.9	14 44.6	53 58.0	+ 0.16	54 0.7	0.28	13 27.6	2.01	16.1
3	14 45.7	14 47.3	54 4.8	0.40	54 10.5	0.54	14 16.1	2.02	17.1
4	14 49.3	14 51.8	54 17.8	+ 0.68	54 26.8	+ 0.82	15 4.7	2.02	18.1
5	14 54.7	14 58.1	54 37.6	0.98	54 50.3	1.14	15 53.0	2.00	19.1
6	15 2.1	15 6.7	55 5.0	1.30	55 21.6	1.47	16 40.8	1.98	20.1
7	15 11.8	15 17.4	55 40.3	+ 1.63	56 0.9	+ 1.79	17 28.1	1.97	21.1
8	15 23.5	15 30.1	56 23.4	1.94	56 47.6	2.08	18 15.2	1.98	22.1
9	15 37.1	15 44.5	57 13.4	2.20	57 40.5	2.30	19 2.9	2.01	23.1
10	15 52.1	15 59.9	58 8.5	+ 2.36	58 36.9	+ 2.37	19 52.0	2.09	24.1
11	16 7.6	16 15.1	59 5.2	2.34	59 32.8	2.25	20 43.4	2.20	25.1
12	16 22.2	16 28.8	59 58.9	2.10	60 23.0	1.90	21 37.8	2.35	26.1
13	16 34.5	16 39.3	60 44.1	+ 1.63	61 1.7	+ 1.31	22 36.0	2.50	27.1
14	16 43.0	16 45.4	61 15.1	0.93	61 23.8	+ 0.51	23 37.5	2.61	28.1
15	16 46.4	16 45.9	61 27.4	+ 0.08	61 25.8	− 0.35	ó	. .	29.1
16	16 44.1	16 40.9	61 19.0	− 0.77	61 7.3	− 1.17	0 41.1	2.65	0.7
17	16 36.4	16 30.9	60 51.1	1.53	60 30.8	1.83	1 44.5	2.60	1.7
18	16 24.5	16 17.4	60 7.3	2.07	59 41.3	2.25	2 45.6	2.47	2.7
19	16 9.8	16 2.0	59 13.4	− 2.37	58 44.5	− 2.43	3 42.9	2.30	3.7
20	15 54.0	15 46.0	58 15.2	2.44	57 46.1	2.40	4 35.9	2.13	4.7
21	15 38.3	15 30.9	57 17.8	2.32	56 50.6	2.20	5 25.0	1.98	5.7
22	15 23.9	15 17.4	56 25.0	− 2.06	56 1.3	− 1.90	6 11.2	1.88	6.7
23	15 11.5	15 6.2	55 39.5	1.73	55 19.9	1.54	6 55.4	1.82	7.7
24	15 1.5	14 57.3	55 2.5	1.36	54 47.2	1.18	7 38.6	1.80	8.7
25	14 53.7	14 50.8	54 34.2	− 1.00	54 23.3	− 0.82	8 21.8	1.81	9.7
26	14 48.4	14 46.5	54 14.5	0.65	54 7.7	0.49	9 5.5	1.84	10.7
27	14 45.2	14 44.3	54 2.7	0.34	53 59.5	− 0.20	9 50.3	1.90	11.7
28	14 43.9	14 43.9	53 57.9	− 0.07	53 57.9	+ 0.05	10 36.6	1.95	12.7
29	14 44.2	14 44.9	53 59.2	+ 0.16	54 1.9	0.27	11 24.1	2.00	13.7
30	14 46.0	14 47.4	54 5.8	0.38	54 11.0	0.47	12 12.7	2.03	14.7
31	14 49.1	14 51.1	54 17.3	0.57	54 24.7	0.66	13 1.7	2.04	15.7
32	14 53.5	14 56.1	54 33.2	+ 0.76	54 42.8	+ 0.85	13 50.5	2.02	16.7

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 1.					MONDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	4 53 25.27	2.0518	N.18 39 50.7	5.063	0	6 33 44.89	2.1183	N.20 59 44.7	0.649
1	4 55 28.43	2.0537	18 44 52.0	4.980	1	6 35 52.01	2.1190	21 0 20.7	0.552
2	4 57 31.71	2.0556	18 49 48.3	4.896	2	6 37 59.17	2.1196	21 0 50.9	0.454
3	4 59 35.10	2.0575	18 54 39.5	4.812	3	6 40 6.36	2.1202	21 1 15.2	0.356
4	5 1 38.61	2.0594	18 59 25.7	4.727	4	6 42 13.59	2.1208	21 1 33.6	0.258
5	5 3 42.23	2.0613	19 4 6.7	4.641	5	6 44 20.86	2.1213	21 1 46.1	0.159
6	5 5 45.96	2.0631	19 8 42.6	4.555	6	6 46 28.15	2.1218	21 1 52.7	0.061
7	5 7 49.80	2.0649	19 13 13.3	4.468	7	6 48 35.47	2.1223	21 1 53.4	0.038
8	5 9 53.75	2.0667	19 17 38.8	4.382	8	6 50 42.82	2.1227	21 1 48.2	0.136
9	5 11 57.80	2.0685	19 21 59.1	4.295	9	6 52 50.19	2.1230	21 1 37.1	0.234
10	5 14 1.97	2.0703	19 26 14.2	4.208	10	6 54 57.58	2.1234	21 1 20.1	0.333
11	5 16 6.24	2.0720	19 30 24.1	4.120	11	6 57 5.00	2.1238	21 0 57.2	0.431
12	5 18 10.61	2.0738	19 34 28.6	4.031	12	6 59 12.43	2.1240	21 0 28.4	0.529
13	5 20 15.09	2.0755	19 38 27.8	3.943	13	7 1 19.88	2.1243	20 59 53.7	0.628
14	5 22 19.67	2.0772	19 42 21.7	3.853	14	7 3 27.34	2.1245	20 59 13.0	0.728
15	5 24 24.35	2.0788	19 46 10.2	3.764	15	7 5 34.82	2.1247	20 58 26.4	0.827
16	5 26 29.13	2.0804	19 49 53.4	3.675	16	7 7 42.31	2.1248	20 57 33.8	0.925
17	5 28 34.00	2.0821	19 53 31.2	3.584	17	7 9 49.80	2.1249	20 56 35.4	1.023
18	5 30 38.98	2.0838	19 57 3.5	3.493	18	7 11 57.30	2.1251	20 55 31.1	1.122
19	5 32 44.05	2.0853	20 0 30.4	3.403	19	7 14 4.81	2.1252	20 54 20.8	1.220
20	5 34 49.21	2.0868	20 3 51.9	3.312	20	7 16 12.32	2.1252	20 53 4.7	1.318
21	5 36 54.46	2.0883	20 7 7.8	3.220	21	7 18 19.83	2.1252	20 51 42.6	1.418
22	5 38 59.81	2.0898	20 10 18.3	3.128	22	7 20 27.34	2.1252	20 50 14.6	1.516
23	5 41 5.24	2.0913	N.20 13 23.2	3.036	23	7 22 34.85	2.1251	N.20 48 40.7	1.615
	SUNDAY 2.					TUESDAY 4.			
0	5 43 10.76	2.0928	N.20 16 22.6	2.943	0	7 24 42.35	2.1249	N.20 47 0.8	1.714
1	5 45 16.37	2.0942	20 19 16.4	2.851	1	7 26 49.84	2.1248	20 45 15.1	1.811
2	5 47 22.06	2.0955	20 22 4.7	2.758	2	7 28 57.33	2.1247	20 43 23.5	1.909
3	5 49 27.83	2.0969	20 24 47.4	2.664	3	7 31 4.81	2.1245	20 41 26.0	2.008
4	5 51 33.69	2.0983	20 27 24.4	2.571	4	7 33 12.27	2.1243	20 39 22.6	2.105
5	5 53 39.62	2.0995	20 29 55.9	2.478	5	7 35 19.72	2.1241	20 37 13.4	2.203
6	5 55 45.63	2.1008	20 32 21.7	2.383	6	7 37 27.16	2.1238	20 34 58.3	2.301
7	5 57 51.72	2.1021	20 34 41.8	2.288	7	7 39 34.58	2.1235	20 32 37.3	2.399
8	5 59 57.88	2.1033	20 36 56.2	2.193	8	7 41 41.98	2.1232	20 30 10.4	2.497
9	6 2 4.11	2.1044	20 39 5.0	2.099	9	7 43 49.36	2.1228	20 27 37.7	2.593
10	6 4 10.41	2.1056	20 41 8.1	2.003	10	7 45 56.72	2.1225	20 24 59.2	2.690
11	6 6 16.78	2.1067	20 43 5.4	1.908	11	7 48 4.06	2.1221	20 22 14.9	2.788
12	6 8 23.21	2.1078	20 44 57.0	1.813	12	7 50 11.37	2.1216	20 19 24.7	2.885
13	6 10 29.71	2.1089	20 46 42.9	1.717	13	7 52 18.65	2.1212	20 16 28.7	2.982
14	6 12 36.28	2.1099	20 48 23.0	1.620	14	7 54 25.91	2.1208	20 13 26.9	3.078
15	6 14 42.90	2.1108	20 49 57.3	1.523	15	7 56 33.14	2.1202	20 10 19.4	3.174
16	6 16 49.58	2.1118	20 51 25.8	1.428	16	7 58 40.33	2.1196	20 7 6.0	3.271
17	6 18 56.32	2.1128	20 52 48.6	1.331	17	8 0 47.49	2.1191	20 3 46.9	3.367
18	6 21 3.11	2.1136	20 54 5.5	1.233	18	8 2 54.62	2.1186	20 0 22.0	3.463
19	6 23 9.95	2.1145	20 55 16.6	1.137	19	8 5 1.72	2.1180	19 56 51.4	3.558
20	6 25 16.85	2.1153	20 56 21.9	1.040	20	8 7 8.78	2.1173	19 53 15.0	3.654
21	6 27 23.79	2.1161	20 57 21.4	0.943	21	8 9 15.80	2.1167	19 49 32.9	3.749
22	6 29 30.78	2.1168	20 58 15.0	0.845	22	8 11 22.78	2.1160	19 45 45.1	3.844
23	6 31 37.81	2.1176	20 59 2.8	0.748	23	8 13 29.72	2.1154	19 41 51.6	3.938
24	6 33 44.89	2.1183	N.20 59 44.7	0.649	24	8 15 36.63	2.1148	N.19 37 52.5	4.033

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 5.					FRIDAY 7.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	8 15 36.63	2.1148	N.19 37 52.5	4.033	0	9 56 9.26	2.0748	N.14 41 15.6	8.182
1	8 17 43.49	2.1140	19 33 47.7	4.128	1	9 58 13.73	2.0742	14 33 2.4	8.258
2	8 19 50.31	2.1133	19 29 37.2	4.222	2	10 0 18.16	2.0735	14 24 44.6	8.335
3	8 21 57.09	2.1126	19 25 21.1	4.315	3	10 2 22.55	2.0729	14 16 22.2	8.410
4	8 24 3.82	2.1118	19 20 59.4	4.409	4	10 4 26.91	2.0724	14 7 55.4	8.484
5	8 26 10.50	2.1110	19 16 32.0	4.503	5	10 6 31.24	2.0718	13 59 24.1	8.559
6	8 28 17.14	2.1103	19 11 59.1	4.595	6	10 8 35.53	2.0713	13 50 48.3	8.633
7	8 30 23.73	2.1094	19 7 20.6	4.688	7	10 10 39.79	2.0708	13 42 8.2	8.706
8	8 32 30.27	2.1086	19 2 36.6	4.780	8	10 12 44.02	2.0703	13 33 23.6	8.779
9	8 34 36.76	2.1078	18 57 47.0	4.873	9	10 14 48.22	2.0698	13 24 34.7	8.852
10	8 36 43.21	2.1071	18 52 51.9	4.964	10	10 16 52.39	2.0693	13 15 41.4	8.923
11	8 38 49.61	2.1062	18 47 51.3	5.056	11	10 18 56.54	2.0689	13 6 43.9	8.994
12	8 40 55.95	2.1053	18 42 45.2	5.147	12	10 21 0.66	2.0685	12 57 42.1	9.065
13	8 43 2.24	2.1044	18 37 33.6	5.238	13	10 23 4.76	2.0682	12 48 36.1	9.135
14	8 45 8.48	2.1036	18 32 16.6	5.328	14	10 25 8.84	2.0678	12 39 25.9	9.205
15	8 47 14.67	2.1028	18 26 54.2	5.418	15	10 27 12.90	2.0675	12 30 11.5	9.274
16	8 49 20.81	2.1018	18 21 26.4	5.508	16	10 29 16.94	2.0673	12 20 53.0	9.343
17	8 51 26.89	2.1009	18 15 53.2	5.598	17	10 31 20.97	2.0671	12 11 30.4	9.411
18	8 53 32.92	2.1000	18 10 14.6	5.688	18	10 33 24.99	2.0668	12 2 3.7	9.478
19	8 55 38.89	2.0991	18 4 30.7	5.777	19	10 35 28.99	2.0666	11 52 33.0	9.545
20	8 57 44.81	2.0983	17 58 41.4	5.865	20	10 37 32.98	2.0665	11 42 58.3	9.612
21	8 59 50.68	2.0973	17 52 46.9	5.953	21	10 39 36.97	2.0664	11 33 19.6	9.678
22	9 1 56.49	2.0964	17 46 47.0	6.042	22	10 41 40.95	2.0663	11 23 37.0	9.743
23	9 4 2.25	2.0956	N.17 40 41.9	6.128	23	10 43 44.93	2.0663	N.11 13 50.5	9.808
	THURSDAY 6.					SATURDAY 8.			
0	9 6 7.96	2.0947	N.17 34 31.6	6.215	0	10 45 48.91	2.0663	N.11 4 0.1	9.872
1	9 8 13.61	2.0938	17 28 16.1	6.303	1	10 47 52.89	2.0663	10 54 5.9	9.935
2	9 10 19.21	2.0928	17 21 55.3	6.389	2	10 49 56.87	2.0664	10 44 7.9	9.998
3	9 12 24.75	2.0919	17 15 29.4	6.474	3	10 52 0.86	2.0666	10 34 6.2	10.060
4	9 14 30.24	2.0911	17 8 58.4	6.559	4	10 54 4.86	2.0668	10 24 0.7	10.122
5	9 16 35.68	2.0902	17 2 22.3	6.645	5	10 56 8.87	2.0669	10 13 51.5	10.183
6	9 18 41.06	2.0892	16 55 41.0	6.730	6	10 58 12.89	2.0671	10 3 38.7	10.244
7	9 20 46.38	2.0883	16 48 54.7	6.813	7	11 0 16.92	2.0673	9 53 22.2	10.304
8	9 22 51.66	2.0875	16 42 3.4	6.898	8	11 2 20.97	2.0678	9 43 2.2	10.363
9	9 24 56.88	2.0865	16 35 7.0	6.982	9	11 4 25.05	2.0681	9 32 38.7	10.421
10	9 27 2.04	2.0857	16 28 5.6	7.065	10	11 6 29.14	2.0684	9 22 11.7	10.479
11	9 29 7.16	2.0848	16 20 59.2	7.148	11	11 8 33.26	2.0689	9 11 41.2	10.537
12	9 31 12.22	2.0839	16 13 47.9	7.229	12	11 10 37.41	2.0694	9 1 7.3	10.593
13	9 33 17.23	2.0832	16 6 31.7	7.312	13	11 12 41.59	2.0699	8 50 30.0	10.649
14	9 35 22.20	2.0823	15 59 10.5	7.393	14	11 14 45.80	2.0704	8 39 49.4	10.704
15	9 37 27.11	2.0815	15 51 44.5	7.473	15	11 16 50.04	2.0710	8 29 5.5	10.759
16	9 39 31.98	2.0808	15 44 13.7	7.554	16	11 18 54.32	2.0718	8 18 18.3	10.813
17	9 41 36.80	2.0799	15 36 38.0	7.635	17	11 20 58.65	2.0725	8 7 27.9	10.867
18	9 43 41.57	2.0791	15 28 57.5	7.714	18	11 23 3.02	2.0733	7 56 34.3	10.919
19	9 45 46.29	2.0783	15 21 12.3	7.793	19	11 25 7.44	2.0740	7 45 37.6	10.971
20	9 47 50.97	2.0777	15 13 22.3	7.873	20	11 27 11.90	2.0748	7 34 37.8	11.023
21	9 49 55.61	2.0769	15 5 27.6	7.951	21	11 29 16.42	2.0758	7 23 34.9	11.073
22	9 52 0.20	2.0762	14 57 28.2	8.028	22	11 31 21.00	2.0768	7 12 29.0	11.123
23	9 54 4.75	2.0755	14 49 24.2	8.105	23	11 33 25.63	2.0778	7 1 20.2	11.172
24	9 56 9.26	2.0748	N.14 41 15.6	8.182	24	11 35 30.33	2.0788	N. 6 50 8.4	11.221

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 9.					TUESDAY 11.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	11 35 30.33	2.0788	N. 6 50 8.4	11.221	0	13 17 32.27	2.1948	S. 2 48 24.7	12.520
1	11 37 35.09	2.0799	6 38 53.7	11.268	1	13 19 44.07	2.1986	3 0 56.0	12.522
2	11 39 39.92	2.0811	6 27 36.3	11.314	2	13 21 56.10	2.2025	3 13 27.3	12.521
3	11 41 44.82	2.0823	6 16 16.0	11.362	3	13 24 8.37	2.2065	3 25 58.5	12.520
4	11 43 49.80	2.0836	6 4 52.9	11.407	4	13 26 20.88	2.2105	3 38 29.7	12.518
5	11 45 54.85	2.0848	5 53 27.2	11.451	5	13 28 33.63	2.2146	3 51 0.7	12.515
6	11 47 59.98	2.0862	5 41 58.8	11.496	6	13 30 46.63	2.2188	4 3 31.5	12.510
7	11 50 5.19	2.0876	5 30 27.7	11.539	7	13 32 59.88	2.2230	4 16 1.9	12.503
8	11 52 10.49	2.0891	5 18 54.1	11.581	8	13 35 13.39	2.2273	4 28 31.9	12.496
9	11 54 15.88	2.0906	5 7 18.0	11.622	9	13 37 27.15	2.2315	4 41 1.4	12.488
10	11 56 21.36	2.0922	4 55 39.5	11.663	10	13 39 41.17	2.2358	4 53 30.4	12.478
11	11 58 26.94	2.0938	4 43 58.5	11.703	11	13 41 55.45	2.2403	5 5 58.7	12.466
12	12 0 32.62	2.0955	4 32 15.1	11.743	12	13 44 10.00	2.2448	5 18 26.3	12.453
13	12 2 38.40	2.0973	4 20 29.4	11.780	13	13 46 24.82	2.2493	5 30 53.1	12.439
14	12 4 44.29	2.0990	4 8 41.5	11.818	14	13 48 39.91	2.2538	5 43 19.0	12.423
15	12 6 50.28	2.1008	3 56 51.3	11.854	15	13 50 55.28	2.2585	5 55 43.9	12.406
16	12 8 56.39	2.1028	3 44 59.0	11.890	16	13 53 10.93	2.2632	6 8 7.7	12.388
17	12 11 2.62	2.1048	3 33 4.5	11.925	17	13 55 26.86	2.2679	6 20 30.4	12.368
18	12 13 8.96	2.1068	3 21 8.0	11.959	18	13 57 43.08	2.2727	6 32 51.9	12.347
19	12 15 15.43	2.1088	3 9 9.4	11.992	19	13 59 59.58	2.2775	6 45 12.0	12.323
20	12 17 22.02	2.1109	2 57 8.9	12.024	20	14 2 16.38	2.2824	6 57 30.7	12.299
21	12 19 28.74	2.1132	2 45 6.5	12.055	21	14 4 33.47	2.2873	7 9 47.9	12.273
22	12 21 35.60	2.1154	2 33 2.3	12.086	22	14 6 50.86	2.2923	7 22 3.5	12.246
23	12 23 42.59	2.1177	N. 2 20 56.2	12.116	23	14 9 8.55	2.2973	S. 7 34 17.4	12.218
	MONDAY 10.					WEDNESDAY 12.			
0	12 25 49.72	2.1201	N. 2 8 48.4	12.144	0	14 11 26.54	2.3024	S. 7 46 29.6	12.188
1	12 27 57.00	2.1225	1 56 38.9	12.172	1	14 13 44.84	2.3075	7 58 39.9	12.155
2	12 30 4.42	2.1250	1 44 27.8	12.198	2	14 16 3.44	2.3127	8 10 48.2	12.122
3	12 32 12.00	2.1276	1 32 15.2	12.223	3	14 18 22.36	2.3179	8 22 54.5	12.087
4	12 34 19.73	2.1302	1 20 1.0	12.249	4	14 20 41.59	2.3232	8 34 58.6	12.050
5	12 36 27.62	2.1328	1 7 45.3	12.273	5	14 23 1.14	2.3284	8 47 0.5	12.012
6	12 38 35.67	2.1355	0 55 28.3	12.295	6	14 25 21.00	2.3337	8 59 0.0	11.972
7	12 40 43.88	2.1383	0 43 9.9	12.317	7	14 27 41.18	2.3391	9 10 57.1	11.931
8	12 42 52.26	2.1412	0 30 50.3	12.337	8	14 30 1.69	2.3445	9 22 51.7	11.888
9	12 45 0.82	2.1442	0 18 29.5	12.357	9	14 32 22.52	2.3498	9 34 43.7	11.843
10	12 47 9.56	2.1471	N. 0 6 7.5	12.376	10	14 34 43.67	2.3553	9 46 32.9	11.797
11	12 49 18.47	2.1500	S. 0 6 15.6	12.393	11	14 37 5.16	2.3608	9 58 19.3	11.749
12	12 51 27.56	2.1531	0 18 39.7	12.410	12	14 39 26.97	2.3663	10 10 2.8	11.700
13	12 53 36.84	2.1563	0 31 4.8	12.425	13	14 41 49.12	2.3719	10 21 43.3	11.648
14	12 55 46.31	2.1595	0 43 30.7	12.439	14	14 44 11.60	2.3774	10 33 20.6	11.596
15	12 57 55.98	2.1628	0 55 57.5	12.453	15	14 46 34.41	2.3830	10 44 54.8	11.542
16	13 0 5.84	2.1660	1 8 25.1	12.465	16	14 48 57.56	2.3887	10 56 25.6	11.485
17	13 2 15.90	2.1694	1 20 53.3	12.476	17	14 51 21.05	2.3943	11 7 53.0	11.427
18	13 4 26.17	2.1728	1 33 22.2	12.486	18	14 53 44.88	2.4000	11 19 16.8	11.367
19	13 6 36.64	2.1763	1 45 51.6	12.494	19	14 56 9.05	2.4057	11 30 37.0	11.306
20	13 8 47.33	2.1799	1 58 21.5	12.502	20	14 58 33.56	2.4113	11 41 53.5	11.243
21	13 10 58.23	2.1835	2 10 51.9	12.509	21	15 0 58.41	2.4171	11 53 6.2	11.178
22	13 13 9.35	2.1873	2 23 22.6	12.514	22	15 3 23.61	2.4228	12 4 14.9	11.112
23	13 15 20.70	2.1910	2 35 53.6	12.518	23	15 5 49.15	2.4285	12 15 19.6	11.044
24	13 17 32.27	2.1948	S. 2 48 24.7	12.520	24	15 8 15.03	2.4343	S. 12 26 20.2	10.974

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 13.					SATURDAY 15.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	15 8 15.03	2.4343	S. 12 26 20.2	10.974	0	17 11 20.86	2.6748	S. 19 20 7.4	5.656
1	15 10 41.26	2.4401	12 37 16.5	10.903	1	17 14 1.44	2.6779	19 25 42.4	5.510
2	15 13 7.84	2.4458	12 48 8.5	10.829	2	17 16 42.21	2.6809	19 31 8.6	5.362
3	15 15 34.76	2.4516	12 58 56.0	10.753	3	17 19 23.15	2.6838	19 36 25.9	5.214
4	15 18 2.03	2.4574	13 9 38.9	10.677	4	17 22 4.27	2.6867	19 41 34.3	5.065
5	15 20 29.65	2.4632	13 20 17.2	10.598	5	17 24 45.55	2.6893	19 46 33.7	4.915
6	15 22 57.61	2.4689	13 30 50.7	10.517	6	17 27 26.99	2.6919	19 51 24.1	4.764
7	15 25 25.92	2.4747	13 41 19.3	10.436	7	17 30 8.58	2.6944	19 56 5.4	4.613
8	15 27 54.57	2.4804	13 51 43.0	10.353	8	17 32 50.32	2.6967	20 0 37.6	4.460
9	15 30 23.57	2.4862	14 2 1.6	10.267	9	17 35 32.19	2.6988	20 5 0.6	4.306
10	15 32 52.91	2.4919	14 12 15.0	10.179	10	17 38 14.18	2.7008	20 9 14.3	4.151
11	15 35 22.60	2.4977	14 22 23.1	10.090	11	17 40 56.29	2.7028	20 13 18.7	3.996
12	15 37 52.63	2.5033	14 32 25.8	9.999	12	17 43 38.52	2.7047	20 17 13.8	3.840
13	15 40 23.00	2.5091	14 42 23.0	9.907	13	17 46 20.85	2.7063	20 20 59.5	3.683
14	15 42 53.72	2.5148	14 52 14.6	9.813	14	17 49 3.27	2.7077	20 24 35.8	3.527
15	15 45 24.77	2.5203	15 2 0.5	9.716	15	17 51 45.77	2.7090	20 28 2.7	3.369
16	15 47 56.15	2.5259	15 11 40.5	9.618	16	17 54 28.35	2.7102	20 31 20.1	3.211
17	15 50 27.88	2.5316	15 21 14.6	9.518	17	17 57 11.00	2.7113	20 34 28.0	3.053
18	15 52 59.94	2.5370	15 30 42.7	9.418	18	17 59 53.71	2.7122	20 37 26.4	2.893
19	15 55 32.32	2.5425	15 40 4.7	9.315	19	18 2 36.47	2.7129	20 40 15.2	2.734
20	15 58 5.04	2.5481	15 49 20.5	9.210	20	18 5 19.26	2.7135	20 42 54.5	2.574
21	16 0 38.09	2.5535	15 58 29.9	9.103	21	18 8 2.09	2.7141	20 45 24.1	2.413
22	16 3 11.46	2.5588	16 7 32.9	8.996	22	18 10 44.95	2.7144	20 47 44.1	2.253
23	16 5 45.15	2.5642	S. 16 16 29.4	8.887	23	18 13 27.82	2.7146	S. 20 49 54.5	2.093
	FRIDAY 14.					SUNDAY 16.			
0	16 8 19.16	2.5695	S. 16 25 19.3	8.776	0	18 16 10.70	2.7146	S. 20 51 55.2	1.931
1	16 10 53.49	2.5748	16 34 2.5	8.663	1	18 18 53.57	2.7144	20 53 46.2	1.770
2	16 13 28.13	2.5799	16 42 38.8	8.548	2	18 21 36.43	2.7142	20 55 27.6	1.609
3	16 16 3.08	2.5850	16 51 8.2	8.432	3	18 24 19.27	2.7138	20 56 59.3	1.448
4	16 18 38.33	2.5901	16 59 30.6	8.314	4	18 27 2.08	2.7132	20 58 21.3	1.287
5	16 21 13.89	2.5952	17 7 45.9	8.195	5	18 29 44.85	2.7124	20 59 33.7	1.126
6	16 23 49.75	2.6002	17 15 54.0	8.073	6	18 32 27.57	2.7116	21 0 36.4	0.963
7	16 26 25.91	2.6050	17 23 54.7	7.951	7	18 35 10.24	2.7106	21 1 29.3	0.802
8	16 29 2.35	2.6098	17 31 48.1	7.828	8	18 37 52.84	2.7093	21 2 12.6	0.642
9	16 31 39.08	2.6145	17 39 34.0	7.703	9	18 40 35.36	2.7080	21 2 46.3	0.481
10	16 34 16.09	2.6191	17 47 12.4	7.576	10	18 43 17.80	2.7066	21 3 10.3	0.320
11	16 36 53.37	2.6237	17 54 43.1	7.447	11	18 46 0.15	2.7050	21 3 24.7	0.159
12	16 39 30.93	2.6282	18 2 6.0	7.317	12	18 48 42.40	2.7033	21 3 29.4	0.002
13	16 42 8.75	2.6326	18 9 21.1	7.186	13	18 51 24.54	2.7013	21 3 24.5	0.162
14	16 44 46.84	2.6369	18 16 28.3	7.053	14	18 54 6.55	2.6992	21 3 10.0	0.321
15	16 47 25.18	2.6412	18 23 27.5	6.919	15	18 56 48.44	2.6970	21 2 46.0	0.480
16	16 50 3.78	2.6453	18 30 18.6	6.784	16	18 59 30.19	2.6947	21 2 12.4	0.639
17	16 52 42.62	2.6493	18 37 1.6	6.648	17	19 2 11.80	2.6922	21 1 29.3	0.797
18	16 55 21.70	2.6533	18 43 36.3	6.509	18	19 4 53.25	2.6895	21 0 36.8	0.954
19	16 58 1.01	2.6571	18 50 2.7	6.370	19	19 7 34.54	2.6868	20 59 34.8	1.112
20	17 0 40.55	2.6608	18 56 20.7	6.230	20	19 10 15.66	2.6838	20 58 23.4	1.268
21	17 3 20.31	2.6645	19 2 30.3	6.088	21	19 12 56.60	2.6808	20 57 2.7	1.423
22	17 6 0.29	2.6680	19 8 31.3	5.945	22	19 15 37.36	2.6777	20 55 32.6	1.579
23	17 8 40.47	2.6714	19 14 23.7	5.801	23	19 18 17.93	2.6744	20 53 53.2	1.733
24	17 11 20.86	2.6748	S. 19 20 7.4	5.656	24	19 20 58.29	2.6709	S. 20 52 4.6	1.888

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 17.					WEDNESDAY 19.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	19 20 58.29	2.6709	S. 20 52 4.6	1.888	0	21 23 18.72	2.4007	S. 16 44 32.4	7.929
1	19 23 38.44	2.6673	20 50 6.7	2.041	1	21 25 42.56	2.3940	16 36 33.9	8.020
2	19 26 18.37	2.6637	20 47 59.7	2.193	2	21 28 6.00	2.3873	16 28 30.0	8.111
3	19 28 58.08	2.6598	20 45 43.6	2.344	3	21 30 29.04	2.3806	16 20 20.6	8.200
4	19 31 37.55	2.6558	20 43 18.4	2.495	4	21 32 51.67	2.3738	16 12 6.0	8.287
5	19 34 16.78	2.6518	20 40 44.2	2.644	5	21 35 13.90	2.3671	16 3 46.2	8.373
6	19 36 55.77	2.6477	20 38 1.1	2.793	6	21 37 35.72	2.3604	15 55 21.2	8.458
7	19 39 34.50	2.6433	20 35 9.1	2.941	7	21 39 57.15	2.3538	15 46 51.2	8.541
8	19 42 12.97	2.6390	20 32 8.2	3.088	8	21 42 18.17	2.3470	15 38 16.3	8.623
9	19 44 51.18	2.6345	20 28 58.6	3.233	9	21 44 38.79	2.3403	15 29 36.5	8.703
10	19 47 29.11	2.6298	20 25 40.2	3.378	10	21 46 59.01	2.3338	15 20 51.9	8.782
11	19 50 6.76	2.6252	20 22 13.2	3.522	11	21 49 18.84	2.3271	15 12 2.7	8.859
12	19 52 44.13	2.6203	20 18 37.6	3.664	12	21 51 38.26	2.3204	15 3 8.8	8.936
13	19 55 21.20	2.6153	20 14 53.5	3.806	13	21 53 57.29	2.3138	14 54 10.4	9.010
14	19 57 57.97	2.6103	20 11 0.9	3.947	14	21 56 15.92	2.3073	14 45 7.6	9.083
15	20 0 34.44	2.6052	20 6 59.9	4.086	15	21 58 34.16	2.3007	14 36 0.5	9.154
16	20 3 10.59	2.5999	20 2 50.6	4.224	16	22 0 52.00	2.2941	14 26 49.1	9.225
17	20 5 46.43	2.5947	19 58 33.0	4.361	17	22 3 9.45	2.2876	14 17 33.5	9.294
18	20 8 21.95	2.5893	19 54 7.3	4.496	18	22 5 26.51	2.2812	14 8 13.8	9.362
19	20 10 57.15	2.5838	19 49 33.5	4.631	19	22 7 43.19	2.2748	13 58 50.1	9.428
20	20 13 32.01	2.5782	19 44 51.6	4.764	20	22 9 59.48	2.2683	13 49 22.5	9.492
21	20 16 6.53	2.5726	19 40 1.8	4.896	21	22 12 15.39	2.2620	13 39 51.1	9.556
22	20 18 40.72	2.5669	19 35 4.1	5.027	22	22 14 30.92	2.2557	13 30 15.8	9.618
23	20 21 14.56	2.5611	S. 19 29 58.6	5.156	23	22 16 46.06	2.2493	S. 13 20 36.9	9.678
	TUESDAY 18.					THURSDAY 20.			
0	20 23 48.05	2.5553	S. 19 24 45.4	5.283	0	22 19 0.83	2.2431	S. 13 10 54.4	9.738
1	20 26 21.19	2.5493	19 19 24.6	5.410	1	22 21 15.23	2.2368	13 1 8.3	9.797
2	20 28 53.97	2.5433	19 13 56.2	5.535	2	22 23 29.25	2.2306	12 51 18.8	9.853
3	20 31 26.39	2.5373	19 8 20.4	5.658	3	22 25 42.90	2.2244	12 41 26.0	9.908
4	20 33 58.44	2.5311	19 2 37.2	5.782	4	22 27 56.18	2.2183	12 31 29.8	9.963
5	20 36 30.12	2.5249	18 56 46.6	5.903	5	22 30 9.10	2.2123	12 21 30.4	10.016
6	20 39 1.43	2.5188	18 50 48.9	6.022	6	22 32 21.65	2.2063	12 11 27.9	10.068
7	20 41 32.37	2.5125	18 44 44.0	6.141	7	22 34 33.85	2.2003	12 1 22.3	10.118
8	20 44 2.93	2.5062	18 38 32.0	6.258	8	22 36 45.69	2.1943	11 51 13.8	10.167
9	20 46 33.11	2.4998	18 32 13.1	6.373	9	22 38 57.17	2.1884	11 41 2.3	10.215
10	20 49 2.91	2.4934	18 25 47.3	6.487	10	22 41 8.30	2.1827	11 30 48.0	10.261
11	20 51 32.32	2.4869	18 19 14.7	6.599	11	22 43 19.09	2.1769	11 20 31.0	10.307
12	20 54 1.34	2.4804	18 12 35.4	6.710	12	22 45 29.53	2.1712	11 10 11.2	10.352
13	20 56 29.97	2.4739	18 5 49.5	6.820	13	22 47 39.63	2.1655	10 59 48.8	10.394
14	20 58 58.21	2.4674	17 58 57.0	6.928	14	22 49 49.39	2.1599	10 49 23.9	10.436
15	21 1 26.06	2.4608	17 51 58.1	7.035	15	22 51 58.82	2.1543	10 38 56.5	10.477
16	21 3 53.51	2.4542	17 44 52.8	7.140	16	22 54 7.91	2.1488	10 28 26.7	10.516
17	21 6 20.56	2.4475	17 37 41.3	7.243	17	22 56 16.67	2.1433	10 17 54.6	10.554
18	21 8 47.21	2.4408	17 30 23.6	7.346	18	22 58 25.11	2.1380	10 7 20.2	10.592
19	21 11 13.46	2.4343	17 22 59.8	7.447	19	23 0 33.23	2.1326	9 56 43.5	10.628
20	21 13 39.32	2.4276	17 15 30.0	7.546	20	23 2 41.02	2.1273	9 46 4.8	10.663
21	21 16 4.77	2.4209	17 7 54.3	7.644	21	23 4 48.50	2.1221	9 35 24.0	10.698
22	21 18 29.83	2.4142	17 0 12.7	7.741	22	23 6 55.67	2.1169	9 24 41.1	10.731
23	21 20 54.48	2.4074	16 52 25.4	7.836	23	23 9 2.53	2.1118	9 13 56.3	10.762
24	21 23 18.72	2.4007	S. 16 44 32.4	7.929	24	23 11 9.09	2.1068	S. 9 3 9.7	10.792

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 21.					SUNDAY 23.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	23 11 9.09	2.1068	S. 9 3 9.7	10.792	0	0 47 38.74	1.9385	S. 0 7 53.5	11.186
1	23 13 15.35	2.1018	8 52 21.3	10.822	1	0 49 34.99	1.9365	N. 0 3 17.3	11.175
2	23 15 21.31	2.0968	8 41 31.1	10.851	2	0 51 31.12	1.9346	0 14 27.5	11.164
3	23 17 26.97	2.0919	8 30 39.2	10.878	3	0 53 27.14	1.9328	0 25 37.0	11.152
4	23 19 32.34	2.0871	8 19 45.7	10.904	4	0 55 23.06	1.9311	0 36 45.7	11.138
5	23 21 37.42	2.0823	8 8 50.7	10.930	5	0 57 18.87	1.9294	0 47 53.6	11.124
6	23 23 42.22	2.0777	7 57 54.1	10.955	6	0 59 14.59	1.9278	0 59 0.6	11.110
7	23 25 46.74	2.0731	7 46 56.1	10.978	7	1 1 10.20	1.9261	1 10 6.8	11.096
8	23 27 50.99	2.0685	7 35 56.8	11.000	8	1 3 5.72	1.9247	1 21 12.1	11.080
9	23 29 54.96	2.0640	7 24 56.1	11.022	9	1 5 1.16	1.9233	1 32 16.4	11.064
10	23 31 58.67	2.0596	7 13 54.2	11.043	10	1 6 56.51	1.9218	1 43 19.8	11.048
11	23 34 2.11	2.0552	7 2 51.0	11.063	11	1 8 51.77	1.9204	1 54 22.1	11.029
12	23 36 5.29	2.0509	6 51 46.7	11.080	12	1 10 46.96	1.9192	2 5 23.3	11.011
13	23 38 8.22	2.0467	6 40 41.4	11.098	13	1 12 42.07	1.9180	2 16 23.4	10.993
14	23 40 10.89	2.0424	6 29 35.0	11.114	14	1 14 37.12	1.9168	2 27 22.4	10.973
15	23 42 13.31	2.0382	6 18 27.7	11.130	15	1 16 32.09	1.9157	2 38 20.2	10.953
16	23 44 15.48	2.0342	6 7 19.4	11.145	16	1 18 27.00	1.9147	2 49 16.8	10.933
17	23 46 17.41	2.0303	5 56 10.3	11.159	17	1 20 21.85	1.9137	3 0 12.1	10.912
18	23 48 19.11	2.0263	5 45 0.3	11.173	18	1 22 16.64	1.9128	3 11 6.2	10.890
19	23 50 20.57	2.0225	5 33 49.6	11.184	19	1 24 11.38	1.9119	3 21 58.9	10.867
20	23 52 21.81	2.0187	5 22 38.2	11.195	20	1 26 6.07	1.9110	3 32 50.2	10.844
21	23 54 22.81	2.0148	5 11 26.2	11.206	21	1 28 0.70	1.9103	3 43 40.2	10.821
22	23 56 23.59	2.0112	5 0 13.5	11.216	22	1 29 55.30	1.9096	3 54 28.7	10.796
23	23 58 24.16	2.0077	S. 4 49 0.3	11.224	23	1 31 49.85	1.9089	N. 4 5 15.7	10.771
	SATURDAY 22.					MONDAY 24.			
0	0 0 24.51	2.0041	S. 4 37 46.6	11.232	0	1 33 44.37	1.9083	N. 4 16 1.2	10.746
1	0 2 24.65	2.0007	4 26 32.5	11.239	1	1 35 38.85	1.9078	4 26 45.2	10.720
2	0 4 24.59	1.9973	4 15 17.9	11.246	2	1 37 33.30	1.9073	4 37 27.6	10.693
3	0 6 24.32	1.9939	4 4 3.0	11.251	3	1 39 27.73	1.9069	4 48 8.3	10.665
4	0 8 23.86	1.9907	3 52 47.8	11.255	4	1 41 22.13	1.9065	4 58 47.4	10.637
5	0 10 23.20	1.9874	3 41 32.4	11.259	5	1 43 16.51	1.9062	5 9 24.8	10.609
6	0 12 22.35	1.9843	3 30 16.7	11.263	6	1 45 10.87	1.9059	5 20 0.5	10.580
7	0 14 21.31	1.9812	3 19 0.9	11.264	7	1 47 5.22	1.9057	5 30 34.4	10.551
8	0 16 20.09	1.9781	3 7 45.0	11.265	8	1 48 59.55	1.9055	5 41 6.6	10.521
9	0 18 18.68	1.9752	2 56 29.1	11.266	9	1 50 53.88	1.9054	5 51 36.9	10.489
10	0 20 17.11	1.9723	2 45 13.1	11.267	10	1 52 48.20	1.9053	6 2 5.3	10.458
11	0 22 15.36	1.9694	2 33 57.1	11.265	11	1 54 42.52	1.9053	6 12 31.8	10.426
12	0 24 13.44	1.9667	2 22 41.3	11.263	12	1 56 36.84	1.9054	6 22 56.4	10.393
13	0 26 11.36	1.9640	2 11 25.6	11.261	13	1 58 31.17	1.9055	6 33 19.0	10.361
14	0 28 9.12	1.9613	2 0 10.0	11.258	14	2 0 25.50	1.9056	6 43 39.7	10.328
15	0 30 6.72	1.9587	1 48 54.7	11.253	15	2 2 19.84	1.9058	6 53 58.3	10.293
16	0 32 4.17	1.9562	1 37 39.7	11.248	16	2 4 14.20	1.9061	7 4 14.8	10.258
17	0 34 1.47	1.9538	1 26 24.9	11.243	17	2 6 8.57	1.9063	7 14 29.2	10.223
18	0 35 58.63	1.9514	1 15 10.5	11.238	18	2 8 2.96	1.9067	7 24 41.5	10.187
19	0 37 55.64	1.9491	1 3 56.4	11.231	19	2 9 57.37	1.9070	7 34 51.6	10.150
20	0 39 52.52	1.9469	0 52 42.8	11.223	20	2 11 51.80	1.9074	7 44 59.5	10.113
21	0 41 49.27	1.9447	0 41 29.7	11.214	21	2 13 46.26	1.9079	7 55 5.2	10.076
22	0 43 45.88	1.9425	0 30 17.1	11.206	22	2 15 40.75	1.9085	8 5 8.6	10.038
23	0 45 42.37	1.9405	0 19 5.0	11.197	23	2 17 35.28	1.9091	8 15 9.7	9.998
24	0 47 38.74	1.9385	S. 0 7 53.5	11.186	24	2 19 29.84	1.9097	N. 8 25 8.4	9.958

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	· Declination.	Diff. for 1 Minute.
	TUESDAY 25.					THURSDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	2 19 29.84	1.9097	N. 8 25 8.4	9.958	0	3 52 35.87	1.9815	N.15 27 5.1	7.405
1	2 21 24.44	1.9103	8 35 4.7	9.919	1	3 54 34.82	1.9836	15 34 27.4	7.338
2	2 23 19.08	1.9110	8 44 58.7	9.879	2	3 56 33.90	1.9858	15 41 45.7	7.271
3	2 25 13.76	1.9118	8 54 50.2	9.838	3	3 58 33.11	1.9880	15 48 59.9	7.203
4	2 27 8.49	1.9125	9 4 39.2	9.796	4	4 0 32.46	1.9902	15 56 10.0	7.134
5	2 29 3.26	1.9133	9 14 25.7	9.753	5	4 2 31.93	1.9923	16 3 16.0	7.065
6	2 30 58.09	1.9143	9 24 9.6	9.710	6	4 4 31.53	1.9944	16 10 17.8	6.995
7	2 32 52.97	1.9152	9 33 50.9	9.668	7	4 6 31.26	1.9966	16 17 15.4	6.925
8	2 34 47.91	1.9162	9 43 29.7	9.624	8	4 8 31.12	1.9988	16 24 8.8	6.854
9	2 36 42.91	1.9171	9 53 5.8	9.579	9	4 10 31.12	2.0011	16 30 57.9	6.783
10	2 38 37.96	1.9181	10 2 39.2	9.534	10	4 12 31.25	2.0033	16 37 42.7	6.711
11	2 40 33.08	1.9193	10 12 9.9	9.488	11	4 14 31.51	2.0055	16 44 23.2	6.638
12	2 42 28.27	1.9204	10 21 37.8	9.443	12	4 16 31.91	2.0078	16 50 59.3	6.565
13	2 44 23.53	1.9215	10 31 3.0	9.396	13	4 18 32.44	2.0100	16 57 31.0	6.492
14	2 46 18.85	1.9227	10 40 25.3	9.348	14	4 20 33.11	2.0123	17 3 58.3	6.418
15	2 48 14.25	1.9240	10 49 44.8	9.301	15	4 22 33.91	2.0145	17 10 21.2	6.343
16	2 50 9.73	1.9253	10 59 1.4	9.253	16	4 24 34.85	2.0168	17 16 39.5	6.268
17	2 52 5.28	1.9265	11 8 15.1	9.203	17	4 26 35.92	2.0190	17 22 53.3	6.193
18	2 54 0.91	1.9278	11 17 25.8	9.153	18	4 28 37.13	2.0213	17 29 2.6	6.117
19	2 55 56.62	1.9293	11 26 33.5	9.103	19	4 30 38.47	2.0235	17 35 7.3	6.039
20	2 57 52.42	1.9307	11 35 38.2	9.053	20	4 32 39.95	2.0258	17 41 7.3	5.962
21	2 59 48.30	1.9321	11 44 39.9	9.002	21	4 34 41.56	2.0279	17 47 2.7	5.884
22	3 1 44.27	1.9335	11 53 38.5	8.950	22	4 36 43.30	2.0302	17 52 53.4	5.806
23	3 3 40.32	1.9350	N.12 2 33.9	8.898	23	4 38 45.18	2.0325	N.17 58 39.4	5.728
	WEDNESDAY 26.					FRIDAY 28.			
0	3 5 36.47	1.9366	N.12 11 26.2	8.845	0	4 40 47.20	2.0348	N.18 4 20.7	5.648
1	3 7 32.71	1.9382	12 20 15.3	8.791	1	4 42 49.35	2.0369	18 9 57.2	5.568
2	3 9 29.05	1.9398	12 29 1.1	8.737	2	4 44 51.63	2.0392	18 15 28.9	5.488
3	3 11 25.48	1.9414	12 37 43.7	8.683	3	4 46 54.05	2.0414	18 20 55.7	5.407
4	3 13 22.02	1.9431	12 46 23.0	8.627	4	4 48 56.60	2.0437	18 26 17.7	5.326
5	3 15 18.65	1.9448	12 54 59.0	8.572	5	4 50 59.29	2.0458	18 31 34.8	5.244
6	3 17 15.39	1.9465	13 3 31.6	8.515	6	4 53 2.10	2.0480	18 36 47.0	5.162
7	3 19 12.23	1.9483	13 12 0.8	8.458	7	4 55 5.05	2.0503	18 41 54.2	5.079
8	3 21 9.18	1.9500	13 20 26.6	8.401	8	4 57 8.13	2.0524	18 46 56.5	4.996
9	3 23 6.23	1.9518	13 28 48.9	8.343	9	4 59 11.34	2.0546	18 51 53.7	4.912
10	3 25 3.39	1.9537	13 37 7.7	8.284	10	5 1 14.68	2.0568	18 56 45.9	4.828
11	3 27 0.67	1.9555	13 45 23.0	8.225	11	5 3 18.15	2.0589	19 1 33.0	4.743
12	3 28 58.05	1.9573	13 53 34.7	8.165	12	5 5 21.75	2.0611	19 6 15.0	4.658
13	3 30 55.55	1.9593	14 1 42.8	8.105	13	5 7 25.48	2.0632	19 10 51.9	4.573
14	3 32 53.16	1.9612	14 9 47.3	8.045	14	5 9 29.33	2.0653	19 15 23.7	4.487
15	3 34 50.89	1.9632	14 17 48.2	7.983	15	5 11 33.31	2.0673	19 19 50.3	4.400
16	3 36 48.74	1.9651	14 25 45.3	7.921	16	5 13 37.41	2.0693	19 24 11.7	4.313
17	3 38 46.70	1.9671	14 33 38.7	7.858	17	5 15 41.63	2.0714	19 28 27.9	4.226
18	3 40 44.79	1.9691	14 41 28.3	7.796	18	5 17 45.98	2.0734	19 32 38.8	4.138
19	3 42 42.99	1.9711	14 49 14.2	7.733	19	5 19 50.44	2.0754	19 36 44.5	4.050
20	3 44 41.32	1.9732	14 56 56.2	7.668	20	5 21 55.03	2.0775	19 40 44.8	3.961
21	3 46 39.77	1.9752	15 4 34.3	7.603	21	5 23 59.74	2.0795	19 44 39.8	3.873
22	3 48 38.34	1.9773	15 12 8.5	7.538	22	5 26 4.57	2.0814	19 48 29.5	3.783
23	3 50 37.04	1.9794	15 19 38.8	7.472	23	5 28 9.51	2.0833	19 52 13.8	3.693
24	3 52 35.87	1.9815	N.15 27 5.1	7.405	24	5 30 14.56	2.0852	N.19 55 52.7	3.603

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 29.			
	h m s	s	° ′ ″	″
0	5 30 14.56	2.0852	N.19 55 52.7	3.603
1	5 32 19.73	2.0871	19 59 26.2	3.513
2	5 34 25.01	2.0890	20 2 54.2	3.421
3	5 36 30.41	2.0908	20 6 16.7	3.329
4	5 38 35.91	2.0926	20 9 33.7	3.238
5	5 40 41.52	2.0943	20 12 45.2	3.146
6	5 42 47.23	2.0961	20 15 51.2	3.053
7	5 44 53.05	2.0978	20 18 51.6	2.961
8	5 46 58.97	2.0995	20 21 46.5	2.868
9	5 49 4.99	2.1013	20 24 35.7	2.773
10	5 51 11.12	2.1029	20 27 19.3	2.679
11	5 53 17.34	2.1044	20 29 57.2	2.585
12	5 55 23.65	2.1060	20 32 29.5	2.491
13	5 57 30.06	2.1076	20 34 56.1	2.396
14	5 59 36.56	2.1091	20 37 17.0	2.301
15	6 1 43.15	2.1106	20 39 32.2	2.205
16	6 3 49.83	2.1120	20 41 41.6	2.109
17	6 5 56.59	2.1134	20 43 45.3	2.013
18	6 8 3.44	2.1148	20 45 43.2	1.917
19	6 10 10.37	2.1162	20 47 35.3	1.821
20	6 12 17.38	2.1174	20 49 21.7	1.724
21	6 14 24.46	2.1187	20 51 2.2	1.627
22	6 16 31.62	2.1200	20 52 36.9	1.530
23	6 18 38.86	2.1212	N.20 54 5.8	1.433
	SUNDAY 30.			
0	6 20 46.16	2.1223	N.20 55 28.8	1.335
1	6 22 53.54	2.1235	20 56 46.0	1.237
2	6 25 0.98	2.1245	20 57 57.3	1.138
3	6 27 8.48	2.1256	20 59 2.6	1.040
4	6 29 16.05	2.1267	21 0 2.1	0.943
5	6 31 23.68	2.1276	21 0 55.7	0.844
6	6 33 31.36	2.1285	21 1 43.4	0.745
7	6 35 39.10	2.1294	21 2 25.1	0.645
8	6 37 46.89	2.1303	21 3 0.8	0.546
9	6 39 54.73	2.1311	21 3 30.6	0.448
10	6 42 2.62	2.1319	21 3 54.5	0.348
11	6 44 10.56	2.1327	21 4 12.3	0.248
12	6 46 18.54	2.1333	21 4 24.2	0.148
13	6 48 26.56	2.1340	21 4 30.1	0.048
14	6 50 34.62	2.1346	21 4 30.0	0.051
15	6 52 42.71	2.1351	21 4 24.0	0.151
16	6 54 50.83	2.1357	21 4 11.9	0.252
17	6 56 58.99	2.1363	21 3 53.8	0.351
18	6 59 7.18	2.1367	21 3 29.8	0.451
19	7 1 15.39	2.1370	21 2 59.7	0.552
20	7 3 23.62	2.1374	21 2 23.6	0.652
21	7 5 31.88	2.1378	21 1 41.5	0.753
22	7 7 40.16	2.1381	21 0 53.3	0.853
23	7 9 48.45	2.1383	20 59 59.2	0.952
24	7 11 56.76	2.1386	N.20 58 59.1	1.052

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 31.			
	h m s	s	° ′ ″	″
0	7 11 56.76	2.1386	N.20 58 59.1	1.052
1	7 14 5.08	2.1388	20 57 53.0	1.153
2	7 16 13.41	2.1388	20 56 40.8	1.253
3	7 18 21.74	2.1389	20 55 22.6	1.353
4	7 20 30.08	2.1391	20 53 58.5	1.453
5	7 22 38.43	2.1391	20 52 28.3	1.553
6	7 24 46.77	2.1390	20 50 52.1	1.653
7	7 26 55.11	2.1389	20 49 9.9	1.753
8	7 29 3.44	2.1388	20 47 21.7	1.853
9	7 31 11.77	2.1387	20 45 27.5	1.953
10	7 33 20.09	2.1386	20 43 27.4	2.053
11	7 35 28.40	2.1383	20 41 21.2	2.153
12	7 37 36.69	2.1381	20 39 9.1	2.252
13	7 39 44.97	2.1378	20 36 51.0	2.351
14	7 41 53.22	2.1374	20 34 27.0	2.450
15	7 44 1.46	2.1371	20 31 57.0	2.549
16	7 46 9.67	2.1367	20 29 21.1	2.648
17	7 48 17.86	2.1363	20 26 39.3	2.746
18	7 50 26.02	2.1358	20 23 51.6	2.845
19	7 52 34.16	2.1353	20 20 57.9	2.943
20	7 54 42.26	2.1347	20 17 58.4	3.041
21	7 56 50.32	2.1341	20 14 53.0	3.139
22	7 58 58.35	2.1336	20 11 41.7	3.238
23	8 1 6.35	2.1329	N.20 8 24.5	3.335
	TUESDAY, JANUARY 1, 1907.			
0	8 3 14.30	2.1322	N.20 5 1.5	3.432

PHASES OF THE MOON.

			d	h	m
☾	Last Quarter	Dec.	8	13	45.1
●	New Moon		15	6	54.3
☽	First Quarter		22	3	3.7
○	Full Moon		30	6	43.8

			d	h
☾	Apogee	Dec.	1	6.4
☾	Perigee		15	2.5
☾	Apogee		28	6.6

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Fomalhaut	W.	99 26 3	3311	100 50 2	3314	102 13 57	3317	103 37 49	3320
	SATURN	W.	95 27 10	3082	96 55 41	3083	98 24 11	3083	99 52 41	3083
	a Pegasi	W.	83 48 3	3439	85 9 36	3438	86 31 9	3437	87 52 44	3436
	a Arietis	W.	40 9 59	3441	41 31 29	3422	42 53 21	3403	44 15 34	3386
	Pollux	E.	39 6 0	3173	37 39 19	3181	36 12 47	3190	34 46 25	3199
	Regulus	E.	74 23 5	3072	72 54 21	3072	71 25 37	3073	69 56 54	3073
2	SATURN	W.	107 15 10	3082	108 43 41	3082	110 12 13	3081	111 40 46	3080
	a Pegasi	W.	94 40 39	3438	96 2 12	3440	97 23 43	3441	98 45 13	3443
	a Arietis	W.	51 11 0	3321	52 34 48	3310	53 58 49	3300	55 23 1	3291
	Aldebaran	W.	17 40 1	3081	19 8 34	3078	20 37 11	3075	22 5 51	3073
	Regulus	E.	62 33 21	3072	61 4 37	3071	59 35 52	3070	58 7 5	3069
	Spica	E.	116 17 59	3110	114 50 2	3108	113 22 2	3106	111 54 0	3104
3	*a* Arietis	W.	62 26 35	3250	63 51 45	3242	65 17 4	3235	66 42 32	3228
	Aldebaran	W.	29 29 51	3061	30 58 48	3058	32 27 49	3055	33 56 53	3052
	Regulus	E.	50 42 47	3060	49 13 49	3058	47 44 48	3055	46 15 43	3052
	MARS	E.	103 31 4	3300	102 6 53	3297	100 42 38	3294	99 18 19	3291
	Spica	E.	104 33 9	3092	103 4 50	3089	101 36 27	3086	100 8 0	3082
4	*a* Arietis	W.	73 51 53	3194	75 18 9	3188	76 44 32	3181	78 11 4	3174
	Aldebaran	W.	41 23 21	3032	42 52 54	3027	44 22 32	3022	45 52 17	3017
	Regulus	E.	38 49 24	3035	37 19 55	3030	35 50 20	3026	34 20 40	3022
	MARS	E.	92 15 45	3271	90 51 0	3266	89 26 9	3261	88 1 12	3255
	Spica	E.	92 44 41	3064	91 15 47	3059	89 46 47	3054	88 17 41	3048
5	*a* Arietis	W.	85 25 50	3139	86 53 13	3132	88 20 44	3124	89 48 24	3116
	Aldebaran	W.	53 22 44	2987	54 53 13	2980	56 23 50	2973	57 54 37	2965
	JUPITER	W.	22 45 3	2962	24 16 3	2954	25 47 13	2945	27 18 34	2936
	Spica	E.	80 50 31	3020	79 20 43	3014	77 50 47	3007	76 20 42	3000
	MARS	E.	80 54 46	3225	79 29 6	3218	78 3 18	3210	76 37 21	3202
	SUN	E.	130 45 42	3386	129 23 10	3379	128 0 29	3370	126 37 38	3361
6	*a* Arietis	W.	97 9 7	3077	98 37 45	3069	100 6 33	3060	101 35 32	3052
	Aldebaran	W.	65 31 2	2922	67 2 53	2912	68 34 56	2902	70 7 12	2892
	JUPITER	W.	34 58 15	2889	36 30 47	2879	38 3 33	2869	39 36 32	2858
	Spica	E.	68 48 0	2960	67 16 57	2951	65 45 43	2942	64 14 17	2933
	MARS	E.	69 25 6	3158	67 58 6	3148	66 30 55	3138	65 3 31	3127
	SUN	E.	119 40 42	3311	118 16 44	3300	116 52 33	3289	115 28 9	3277
7	Aldebaran	W.	77 51 58	2835	79 25 40	2823	80 59 38	2810	82 33 53	2797
	JUPITER	W.	47 25 3	2800	48 59 31	2787	50 34 16	2774	52 9 18	2761
	Pollux	W.	34 22 41	2955	35 53 50	2934	37 25 26	2913	38 57 28	2893
	Spica	E.	56 34 9	2883	55 1 29	2873	53 28 35	2862	51 55 28	2852
	MARS	E.	57 43 12	3069	56 14 25	3057	54 45 23	3044	53 16 5	3031
	SUN	E.	108 22 35	3214	106 56 43	3200	105 30 34	3186	104 4 8	3172
8	Aldebaran	W.	90 29 33	2726	92 5 38	2711	93 42 3	2696	95 18 49	2680
	JUPITER	W.	60 8 57	2690	61 45 50	2675	63 23 4	2659	65 0 39	2643
	Pollux	W.	46 43 53	2798	48 18 23	2779	49 53 18	2760	51 28 38	2742
	Spica	E.	44 6 22	2797	42 31 50	2787	40 57 5	2776	39 22 6	2766
	MARS	E.	45 45 22	2961	44 14 20	2946	42 43 0	2931	41 11 21	2916

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh	P. L. of Diff.	XVIIIh	P. L. of Diff.	XXIh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Fomalhaut	W.	105 1 37	3324	106 25 21	3328	107 49 0	3332	109 12 35	3335
	SATURN	W.	101 21 11	3084	102 49 40	3083	104 18 10	3083	105 46 40	3083
	α Pegasi	W.	89 14 19	3436	90 35 55	3437	91 57 30	3437	93 19 5	3438
	α Arietis	W.	45 38 7	3371	47 0 57	3357	48 24 3	3344	49 47 25	3332
	Pollux	E.	33 20 15	3209	31 54 17	3220	30 28 32	3234	29 3 3	3251
	Regulus	E.	68 28 12	3073	66 59 30	3073	65 30 47	3073	64 2 4	3073
2	SATURN	W.	113 9 20	3079	114 37 56	3078	116 6 33	3076	117 35 13	3073
	α Pegasi	W.	100 6 40	3446	101 28 5	3448	102 49 27	3451	104 10 46	3453
	α Arietis	W.	56 47 24	3282	58 11 57	3273	59 36 40	3265	61 1 33	3257
	Aldebaran	W.	23 34 33	3071	25 3 18	3069	26 32 6	3066	28 0 57	3064
	Regulus	E.	56 38 17	3067	55 9 27	3066	53 40 36	3064	52 11 43	3062
	Spica	E.	110 25 55	3102	108 57 48	3100	107 29 38	3097	106 1 25	3095
3	α Arietis	W.	68 8 8	3221	69 33 52	3214	70 59 44	3207	72 25 45	3201
	Aldebaran	W.	35 26 2	3048	36 55 15	3045	38 24 32	3041	39 53 54	3037
	Regulus	E.	44 46 35	3049	43 17 23	3046	41 48 8	3043	40 18 48	3039
	MARS	E.	97 53 57	3288	96 29 31	3284	95 5 1	3280	93 40 26	3275
	Spica	E.	98 39 29	3079	97 10 54	3076	95 42 15	3072	94 13 31	3068
4	α Arietis	W.	79 37 45	3168	81 4 33	3160	82 31 30	3153	83 58 36	3146
	Aldebaran	W.	47 22 8	3012	48 52 6	3006	50 22 11	3000	51 52 24	2994
	Regulus	E.	32 50 54	3017	31 21 3	3012	29 51 5	3006	28 21 0	3001
	MARS	E.	86 36 8	3250	85 10 58	3244	83 45 42	3238	82 20 18	3231
	Spica	E.	86 48 28	3043	85 19 9	3038	83 49 44	3032	82 20 11	3026
5	α Arietis	W.	91 16 14	3109	92 44 13	3101	94 12 21	3093	95 40 39	3085
	Aldebaran	W.	59 25 33	2957	60 56 39	2949	62 27 56	2940	63 59 23	2931
	JUPITER	W.	28 50 7	2927	30 21 51	2918	31 53 47	2909	33 25 55	2899
	Spica	E.	74 50 29	2993	73 20 7	2985	71 49 35	2977	70 18 53	2968
	MARS	E.	75 11 14	3194	73 44 58	3185	72 18 31	3177	70 51 54	3168
	SUN	E.	125 14 37	3352	123 51 26	3342	122 28 3	3332	121 4 28	3322
6	α Arietis	W.	103 4 41	3043	104 34 1	3034	106 3 32	3026	107 33 13	3017
	Aldebaran	W.	71 39 41	2881	73 12 23	2870	74 45 20	2859	76 18 31	2847
	JUPITER	W.	41 9 45	2847	42 43 12	2835	44 16 54	2824	45 50 51	2812
	Spica	E.	62 42 40	2924	61 10 51	2914	59 38 50	2904	58 6 36	2894
	MARS	E.	63 35 55	3116	62 8 5	3105	60 40 2	3093	59 11 44	3081
	SUN	E.	114 3 31	3265	112 38 39	3253	111 13 33	3240	109 48 12	3227
7	Aldebaran	W.	84 8 25	2783	85 43 14	2769	87 18 22	2755	88 53 48	2741
	JUPITER	W.	53 44 37	2747	55 20 14	2733	56 56 9	2719	58 32 23	2704
	Pollux	W.	40 29 56	2874	42 2 48	2855	43 36 5	2836	45 9 47	2817
	Spica	E.	50 22 7	2841	48 48 32	2830	47 14 43	2819	45 40 40	2808
	MARS	E.	51 46 31	3018	50 16 40	3004	48 46 32	2990	47 16 6	2975
	SUN	E.	102 37 25	3157	101 10 25	3142	99 43 6	3126	98 15 28	3110
8	Aldebaran	W.	96 55 55	2664	98 33 23	2648	100 11 12	2632	101 49 24	2615
	JUPITER	W.	66 38 35	2628	68 16 52	2612	69 55 31	2596	71 34 32	2579
	Pollux	W.	53 4 22	2724	54 40 30	2705	56 17 3	2687	57 54 1	2668
	Spica	E.	37 46 54	2757	36 11 30	2748	34 35 54	2740	33 0 6	2732
	MARS	E.	39 39 24	2901	38 7 7	2887	36 34 31	2872	35 1 36	2856

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
8	Sun	E.	96 47 31	3094	95 19 14	3078	93 50 37	3061	92 21 39	3044
9	Aldebaran	W.	103 27 59	2598	105 6 57	2581	106 46 18	2564	108 26 3	2546
	Jupiter	W.	73 13 57	2562	74 53 45	2545	76 33 56	2527	78 14 32	2510
	Pollux	W.	59 31 24	2649	61 9 12	2631	62 47 25	2612	64 26 4	2592
	Regulus	W.	23 21 50	2610	25 0 31	2590	26 39 40	2571	28 19 15	2553
	Sun	E.	84 51 29	2954	83 20 19	2936	81 48 46	2917	80 16 49	2898
10	Jupiter	W.	86 43 41	2420	88 26 47	2402	90 10 19	2384	91 54 17	2365
	Pollux	W.	72 45 52	2498	74 27 9	2479	76 8 52	2460	77 51 2	2441
	Regulus	W.	36 43 30	2460	38 25 39	2442	40 8 14	2423	41 51 16	2404
	Sun	E.	72 30 54	2801	70 56 27	2782	69 21 35	2762	67 46 17	2742
11	Jupiter	W.	100 40 44	2275	102 27 20	2257	104 14 23	2240	106 1 52	2223
	Pollux	W.	86 28 31	2348	88 13 21	2331	89 58 36	2313	91 44 17	2295
	Regulus	W.	50 33 6	2312	52 18 48	2294	54 4 56	2277	55 51 30	2258
	Sun	E.	59 43 18	2645	58 5 24	2626	56 27 5	2607	54 48 20	2589
12	Pollux	W.	100 39 1	2213	102 27 10	2197	104 15 42	2182	106 4 36	2168
	Regulus	W.	64 50 49	2174	66 39 55	2158	68 29 26	2143	70 19 21	2128
	Sun	E.	46 28 21	2501	44 47 9	2485	43 5 35	2470	41 23 39	2455
17	Sun	W.	24 14 30	2394	25 58 13	2404	27 41 42	2415	29 24 56	2425
	Saturn	E.	50 34 37	2068	48 42 48	2080	46 51 18	2093	45 0 8	2107
	a Arietis	E.	106 59 17	2214	105 11 11	2225	103 23 21	2236	101 35 47	2248
18	Sun	W.	37 56 46	2495	39 38 6	2511	41 19 4	2528	42 59 38	2545
	Saturn	E.	35 49 49	2183	34 0 56	2200	32 12 29	2218	30 24 28	2235
	a Arietis	E.	92 42 32	2316	90 56 56	2333	89 11 45	2350	87 26 58	2367
19	Sun	W.	51 16 19	2639	52 54 21	2658	54 31 57	2678	56 9 7	2698
	a Arietis	E.	78 49 36	2464	77 7 31	2485	75 25 57	2506	73 44 52	2528
	Aldebaran	E.	110 17 45	2304	108 31 51	2322	106 46 24	2341	105 1 24	2360
20	Sun	W.	64 8 18	2798	65 42 48	2819	67 16 51	2839	68 50 28	2859
	a Arietis	E.	65 27 13	2644	63 49 18	2669	62 11 56	2694	60 35 7	2719
	Aldebaran	E.	96 23 15	2455	94 40 59	2474	92 59 9	2493	91 17 45	2512
21	Sun	W.	76 32 12	2958	78 3 18	2977	79 34 0	2996	81 4 18	3014
	a Arietis	E.	52 39 50	2857	51 6 36	2887	49 34 0	2918	48 2 4	2950
	Aldebaran	E.	82 57 17	2603	81 18 27	2621	79 40 1	2639	78 1 59	2656
	Jupiter	E.	111 40 33	2562	110 0 46	2580	108 21 24	2598	106 42 26	2615
22	Sun	W.	88 30 8	3104	89 58 13	3120	91 25 58	3137	92 53 23	3153
	Saturn	W.	18 42 23	2769	20 17 32	2783	21 52 22	2798	23 26 53	2813
	Aldebaran	E.	69 57 33	2739	68 21 45	2754	66 46 18	2769	65 11 10	2784
	Jupiter	E.	98 33 15	2696	96 56 30	2711	95 20 6	2726	93 44 1	2741
	Pollux	E.	113 59 21	2784	112 24 32	2798	110 50 2	2813	109 15 51	2827
23	Sun	W.	100 5 45	3228	101 31 21	3242	102 56 40	3255	104 21 44	3268
	Saturn	W.	31 14 53	2880	32 47 38	2893	34 20 6	2905	35 52 19	2916
	Aldebaran	E.	57 20 17	2855	55 47 0	2867	54 13 59	2879	52 41 13	2891

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh	P. L. of Diff.	XVIIIh	P. L. of Diff.	XXIh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
8	SUN	E.	90 52 21	3026	89 22 41	3009	87 52 40	2991	86 22 16	2973
9	Aldebaran	W.	110 6 12	2528	111 46 46	2510	113 27 44	2492	115 9 8	2475
	JUPITER	W.	79 55 32	2492	81 36 57	2474	83 18 46	2456	85 1 1	2438
	Pollux	W.	66 5 10	2574	67 44 41	2555	69 24 38	2536	71 5 2	2517
	Regulus	W.	29 59 15	2535	31 39 40	2516	33 20 31	2498	35 1 47	2479
	SUN	E.	78 44 27	2879	77 11 41	2860	75 38 31	2840	74 4 55	2821
10	JUPITER	W.	93 38 42	2347	95 23 33	2329	97 8 50	2311	98 54 34	2293
	Pollux	W.	79 33 38	2422	81 16 41	2403	83 0 11	2384	84 44 8	2366
	Regulus	W.	43 34 45	2386	45 18 40	2367	47 3 2	2348	48 47 51	2331
	SUN	E.	66 10 33	2722	64 34 23	2703	62 57 47	2684	61 20 46	2664
11	JUPITER	W.	107 49 46	2205	109 38 6	2188	111 26 52	2171	113 16 3	2155
	Pollux	W.	93 30 24	2278	95 16 57	2261	97 3 54	2245	98 51 16	2229
	Regulus	W.	57 38 31	2241	59 25 57	2224	61 13 49	2207	63 2 7	2190
	SUN	E.	53 9 10	2571	51 29 34	2553	49 49 34	2535	48 9 9	2518
12	Pollux	W.	107 53 52	2154	109 43 29	2141	111 33 25	2129	113 23 40	2116
	Regulus	W.	72 9 38	2113	74 0 18	2099	75 51 19	2085	77 42 41	2072
	SUN	E.	39 41 22	2440	37 58 44	2427	36 15 47	2414	34 32 32	2401
17	SUN	W.	31 7 55	2437	32 50 37	2450	34 33 0	2465	36 15 4	2480
	SATURN	E.	43 9 19	2121	41 18 52	2136	39 28 47	2151	37 39 6	2167
	a Arietis	E.	99 48 30	2260	98 1 31	2273	96 14 51	2286	94 28 31	2300
18	SUN	W.	44 39 49	2563	46 19 35	2582	47 58 55	2600	49 37 50	2619
	SATURN	E.	28 36 52	2253	26 49 43	2272	25 3 2	2291	23 16 49	2309
	a Arietis	E.	85 42 35	2385	83 58 39	2404	82 15 11	2424	80 32 10	2443
19	SUN	W.	57 45 51	2718	59 22 7	2738	60 57 57	2758	62 33 21	2778
	a Arietis	E.	72 4 17	2551	70 24 14	2574	68 44 42	2596	67 5 42	2619
	Aldebaran	E.	103 16 52	2379	101 32 47	2398	99 49 9	2417	98 5 58	2436
20	SUN	W.	70 23 40	2879	71 56 26	2899	73 28 46	2919	75 0 41	2938
	a Arietis	E.	58 58 53	2745	57 23 13	2772	55 48 9	2800	54 13 41	2828
	Aldebaran	E.	89 36 48	2530	87 56 17	2549	86 16 12	2567	84 36 32	2585
21	SUN	W.	82 34 13	3033	84 3 45	3051	85 32 54	3069	87 1 42	3087
	a Arietis	E.	46 30 49	2984	45 0 16	3019	43 30 26	3056	42 1 21	3094
	Aldebaran	E.	76 24 20	2673	74 47 5	2690	73 10 12	2707	71 33 42	2723
	JUPITER	E.	105 3 51	2632	103 25 39	2648	101 47 49	2664	100 10 21	2681
22	SUN	W.	94 20 28	3169	95 47 14	3184	97 13 42	3199	98 39 52	3214
	SATURN	W.	25 1 4	2827	26 34 57	2840	28 8 33	2853	29 41 51	2866
	Aldebaran	E.	63 36 22	2799	62 1 53	2814	60 27 43	2828	58 53 51	2842
	JUPITER	E.	92 8 16	2755	90 32 50	2769	88 57 42	2783	87 22 52	2797
	Pollux	E.	107 41 58	2841	106 8 23	2854	104 35 6	2867	103 2 5	2880
23	SUN	W.	105 46 33	3281	107 11 7	3293	108 35 27	3304	109 59 34	3315
	SATURN	W.	37 24 18	2927	38 56 2	2939	40 27 31	2950	41 58 47	2960
	Aldebaran	E.	51 8 43	2903	49 36 28	2914	48 4 27	2924	46 32 39	2935

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LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh	P. L. of Diff.	VIh	P. L. of Diff.	IXh	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
23	JUPITER	E.	85 48 20	2810	84 14 5	2822	82 40 6	2834	81 6 22	2846
	Pollux	E.	101 29 21	2893	99 56 53	2905	98 24 41	2917	96 52 44	2929
24	SUN	W.	111 23 27	3326	112 47 8	3337	114 10 36	3347	115 33 53	3357
	SATURN	W.	43 29 50	2970	45 0 40	2979	46 31 19	2988	48 1 46	2997
	Aldebaran	E.	45 1 5	2945	43 29 43	2955	41 58 34	2964	40 27 37	2973
	JUPITER	E.	73 21 23	2899	71 49 3	2909	70 16 55	2918	68 44 59	2927
	Pollux	E.	89 16 33	2982	87 45 58	2992	86 15 35	3001	84 45 23	3009
25	Fomalhaut	W.	62 51 22	3300	64 15 34	3299	65 39 47	3298	67 4 1	3298
	SATURN	W.	55 31 28	3035	57 0 57	3042	58 30 18	3048	59 59 31	3054
	Aldebaran	E.	32 55 27	3012	31 25 29	3019	29 55 40	3025	28 25 58	3031
	JUPITER	E.	61 7 54	2965	59 36 57	2971	58 6 8	2977	56 35 27	2983
	Pollux	E.	77 17 3	3049	75 47 51	3056	74 18 49	3063	72 49 54	3069
	Regulus	E.	113 3 35	3012	111 33 37	3018	110 3 46	3023	108 34 2	3029
26	Fomalhaut.	W.	74 5 11	3298	75 29 25	3298	76 53 39	3298	78 17 53	3298
	SATURN	W.	67 23 59	3077	68 52 36	3081	70 21 9	3084	71 49 37	3087
	JUPITER	E.	49 3 42	3007	47 33 38	3011	46 3 39	3014	44 33 44	3018
	Pollux	E.	65 27 12	3097	63 59 0	3102	62 30 53	3107	61 2 52	3111
	Regulus	E.	101 7 0	3052	99 37 52	3056	98 8 49	3059	96 39 50	3062
27	Fomalhaut	W.	85 18 51	3301	86 43 1	3302	88 7 9	3303	89 31 17	3303
	SATURN	W.	79 11 9	3099	80 39 20	3100	82 7 29	3101	83 35 37	3101
	a Pegasi	W.	70 13 38	3490	71 34 13	3485	72 54 55	3480	74 15 42	3475
	JUPITER	E.	37 5 7	3032	35 35 33	3034	34 6 2	3035	32 36 33	3037
	Pollux	E.	53 44 4	3132	52 16 32	3136	50 49 6	3139	49 21 44	3142
	Regulus	E.	89 15 41	3073	87 46 59	3074	86 18 18	3075	84 49 38	3076
28	Fomalhaut	W.	96 31 46	3307	97 55 49	3309	99 19 50	3310	100 43 50	3311
	SATURN	W.	90 56 9	3102	92 24 16	3102	93 52 23	3101	95 20 31	3101
	a Pegasi	W.	81 0 56	3454	82 22 12	3451	83 43 31	3448	85 4 54	3445
	a Arietis	W.	37 24 21	3506	38 44 38	3479	40 5 26	3454	41 26 42	3431
	Pollux	E.	42 6 4	3163	40 39 11	3168	39 12 24	3174	37 45 43	3180
	Regulus	E.	77 26 28	3077	75 57 50	3076	74 29 11	3075	73 0 31	3074
29	Fomalhaut	W.	107 43 25	3320	109 7 13	3323	110 30 59	3326	111 54 42	3329
	SATURN	W.	102 41 31	3093	104 9 49	3091	105 38 10	3089	107 6 34	3087
	a Pegasi	W.	91 52 25	3437	93 14 1	3436	94 35 37	3435	95 57 15	3434
	a Arietis	W.	48 18 48	3343	49 42 10	3329	51 5 48	3315	52 29 42	3302
	Aldebaran	W.	14 37 10	3078	16 5 46	3074	17 34 27	3070	19 3 14	3066
	Regulus	E.	65 36 50	3067	64 8 0	3065	62 39 7	3062	61 10 11	3060
30	SATURN	W.	114 29 17	3073	115 58 0	3069	117 26 48	3065	118 55 40	3062
	a Pegasi	W.	102 45 22	3438	104 6 56	3440	105 28 28	3442	106 49 57	3445
	a Arietis	W.	59 32 32	3250	60 57 42	3241	62 23 3	3232	63 48 34	3223
	Aldebaran	W.	26 28 15	3047	27 57 29	3043	29 26 47	3039	30 56 11	3036
	Regulus	E.	53 44 47	3046	52 15 31	3043	50 46 12	3040	49 16 49	3036
31	*a* Arietis	W.	70 58 35	3185	72 25 2	3178	73 51 38	3170	75 18 23	3163
	Aldebaran	W.	38 24 22	3015	39 54 16	3010	41 24 16	3005	42 54 22	3001
	Regulus	E.	41 48 46	3018	40 18 55	3014	38 49 0	3009	37 18 59	3005

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LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^{h}	P. L. of Diff.	XVIII^{h}	P. L. of Diff.	XXI^{h}	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
23	JUPITER	E.	79 32 54	2857	77 59 40	2868	76 26 41	2879	74 53 55	2890
	Pollux	E.	95 21 2	2940	93 49 35	2951	92 18 21	2962	90 47 21	2972
24	SUN	W.	116 56 59	3366	118 19 54	3374	119 42 40	3383	121 5 16	3391
	SATURN	W.	49 32 3	3005	51 2 9	3014	52 32 4	3022	54 1 50	3028
	Aldebaran	E.	38 56 51	2981	37 26 16	2989	35 55 50	2997	34 25 34	3005
	JUPITER	E.	67 13 14	2935	65 41 40	2942	64 10 15	2950	62 39 0	2958
	Pollux	E.	83 15 22	3018	81 45 32	3027	80 15 53	3035	78 46 24	3042
25	Fomalhaut	W.	68 28 15	3298	69 52 29	3298	71 16 43	3298	72 40 57	3298
	SATURN	W.	61 28 37	3060	62 57 36	3065	64 26 29	3069	65 55 17	3073
	Aldebaran	E.	26 56 24	3037	25 26 57	3043	23 57 38	3048	22 28 26	3053
	JUPITER	E.	55 4 53	2989	53 34 26	2994	52 4 6	2998	50 33 51	3003
	Pollux	E.	71 21 7	3076	69 52 28	3082	68 23 56	3087	66 55 31	3092
	Regulus	E.	107 4 25	3034	105 34 55	3039	104 5 31	3044	102 36 13	3048
26	Fomalhaut	W.	79 42 6	3300	81 6 18	3300	82 30 30	3300	83 54 41	3301
	SATURN	W.	73 18 2	3090	74 46 23	3093	76 14 41	3095	77 42 56	3097
	JUPITER	E.	43 3 53	3021	41 34 6	3024	40 4 23	3027	38 34 43	3030
	Pollux	E.	59 34 56	3115	58 7 5	3120	56 39 20	3124	55 11 40	3128
	Regulus	E.	95 10 54	3065	93 42 2	3067	92 13 12	3069	90 44 25	3071
27	Fomalhaut	W.	90 55 25	3304	92 19 32	3305	93 43 37	3306	95 7 42	3306
	SATURN	W.	85 3 45	3102	86 31 52	3103	87 59 57	3103	89 28 3	3103
	α Pegasi	W.	75 36 35	3470	76 57 33	3465	78 18 36	3461	79 39 44	3457
	JUPITER	E.	31 7 5	3039	29 37 40	3040	28 8 16	3042	26 38 55	3043
	Pollux	E.	47 54 26	3147	46 27 13	3151	45 0 5	3155	43 33 2	3159
	Regulus	E.	83 20 59	3077	81 52 21	3077	80 23 43	3078	78 55 6	3077
28	Fomalhaut	W.	102 7 49	3313	103 31 46	3314	104 55 41	3316	106 19 34	3318
	SATURN	W.	96 48 40	3100	98 16 50	3098	99 45 2	3097	101 13 15	3095
	α Pegasi	W.	86 26 20	3443	87 47 48	3441	89 9 18	3439	90 30 51	3438
	α Arietis	W.	42 48 24	3410	44 10 29	3391	45 32 56	3374	46 55 43	3358
	Pollux	E.	36 19 10	3187	34 52 45	3194	33 26 28	3203	32 0 21	3213
	Regulus	E.	71 31 50	3073	70 3 8	3072	68 34 24	3070	67 5 38	3069
29	Fomalhaut	W.	113 18 20	3332	114 41 54	3336	116 5 24	3341	117 28 48	3345
	SATURN	W.	108 35 0	3084	110 3 30	3081	111 32 2	3078	113 0 38	3076
	α Pegasi	W.	97 18 53	3434	98 40 31	3434	100 2 9	3435	101 23 46	3436
	α Arietis	W.	53 53 51	3292	55 18 12	3281	56 42 46	3270	58 7 33	3260
	Aldebaran	W.	20 32 5	3062	22 1 1	3059	23 30 1	3055	24 59 6	3051
	Regulus	E.	59 41 13	3058	58 12 12	3055	56 43 7	3052	55 13 59	3049
30	SATURN	W.	120 24 36	3059	121 53 36	3055	123 22 41	3051	124 51 51	3047
	α Pegasi	W.	108 11 23	3449	109 32 45	3453	110 54 2	3458	112 15 14	3463
	α Arietis	W.	65 14 16	3215	66 40 7	3207	68 6 7	3199	69 32 17	3192
	Aldebaran	W.	32 25 39	3032	33 55 12	3028	35 24 50	3024	36 54 33	3019
	Regulus	E.	47 47 21	3033	46 17 49	3030	44 48 13	3026	43 18 32	3022
31	α Arietis	W.	76 45 16	3157	78 12 17	3151	79 39 25	3144	81 6 42	3137
	Aldebaran	W.	44 24 33	2996	45 54 50	2991	47 25 14	2986	48 55 44	2981
	Regulus	E.	35 48 53	3001	34 18 42	2997	32 48 25	2992	31 18 2	2988

GREENWICH MEAN TIME.

JANUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	17 7 26.87	+ 7.996	−20 35 5.5	−30.50	22 26.0
2	17 10 49.14	8.845	20 47 31.8	31.60	22 25.7
3	17 14 30.75	9.609	21 0 18.3	32.20	22 25.8
4	17 18 29.77	10.297	21 13 13.6	32.34	22 26.0
5	17 22 44.45	10.916	21 26 7.7	32.10	22 26.6
6	17 27 13.26	+ 11.475	−21 38 51.5	−31.49	22 27.3
7	17 31 54.82	11.980	21 51 17.0	30.58	22 28.2
8	17 36 47.90	12.437	22 3 17.1	29.40	22 29.3
9	17 41 51.42	12.851	22 14 45.5	27.96	22 30.6
10	17 47 4.41	13.226	22 25 36.6	26.28	22 32.0
11	17 52 26.02	+ 13.569	−22 35 45.4	−24.42	22 33.6
12	17 57 55.48	13.881	22 45 7.5	22.39	22 35.2
13	18 3 32.11	14.167	22 53 38.8	20.19	22 37.0
14	18 9 15.30	14.427	23 1 15.5	17.87	22 38.9
15	18 15 4.47	14.666	23 7 55.6	15.43	22 40.8
16	18 20 59.14	+ 14.887	−23 13 35.1	− 12.87	22 42.9
17	18 26 58.88	15.090	23 18 12.0	10.20	22 45.0
18	18 33 3.28	15.275	23 21 43.8	7.44	22 47.2
19	18 39 11.94	15.445	23 24 8.5	4.61	22 49.5
20	18 45 24.53	15.602	23 25 24.2	− 1.70	22 51.8
21	18 51 40.75	+ 15.747	−23 25 29.3	+ 1.28	22 54.2
22	18 58 0.32	15.882	23 24 22.1	4.32	22 56.6
23	19 4 22.97	16.004	23 22 1.4	7.42	22 59.1
24	19 10 48.45	16.117	23 18 25.6	10.57	23 1.6
25	19 17 16.54	16.222	23 13 33.6	13.76	23 4.2
26	19 23 47.05	+ 16.319	−23 7 24.5	+ 17.00	23 6.8
27	19 30 19.78	16.407	22 59 57.2	20.28	23 9.5
28	19 36 54.55	16.489	22 51 10.7	23.60	23 12.1
29	19 43 31.21	16.565	22 41 4.3	26.95	23 14.8
30	19 50 9.61	16.634	22 29 37.1	30.33	23 17.6
31	19 56 49.61	+ 16.698	−22 16 48.3	+ 33.74	23 20.3
32	20 3 31.08	+ 16.757	−22 2 37.4	+ 37.17	23 23.1

FEBRUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	20 3 31.08	+ 16.757	−22 2 37.4	+ 37.17	23 23.1
2	20 10 13.92	16.812	21 47 3.7	40.64	23 25.9
3	20 16 58.02	16.862	21 30 6.6	44.12	23 28.7
4	20 23 43.28	16.909	21 11 45.6	47.63	23 31.5
5	20 30 29.62	16.953	20 52 0.4	51.15	23 34.4
6	20 37 16.98	+ 16.993	−20 30 50.2	+ 54.69	23 37.3
7	20 44 5.27	17.031	20 8 14.9	58.26	23 40.1
8	20 50 54.44	17.066	19 44 13.8	61.83	23 43.0
9	20 57 44.44	17.100	19 18 46.9	65.41	23 45.9
10	21 4 35.23	17.132	18 51 53.9	69.01	23 48.9
11	21 11 26.76	+ 17.162	−18 23 34.5	+ 72.61	23 51.8
12	21 18 19.00	17.192	17 53 48.6	76.22	23 54.7
13	21 25 11.93	17.219	17 22 36.0	79.83	23 57.7
14	21 32 5.51	17.246	16 49 56.9	83.43	. .
15	21 38 59.72	17.271	16 15 51.3	87.04	0 0.7
16	21 45 54.52	+ 17.295	−15 40 19.3	+ 90.63	0 3.6
17	21 52 49.90	17.319	15 3 21.3	94.20	0 6.6
18	21 59 45.80	17.339	14 24 57.9	97.74	0 9.6
19	22 6 42.18	17.357	13 45 9.7	101.26	0 12.6
20	22 13 38.98	17.375	13 3 57.7	104.73	0 15.6
21	22 20 36.13	+ 17.388	−12 21 23.0	+ 108.14	0 18.6
22	22 27 33.54	17.396	11 37 27.3	111.49	0 21.7
23	22 34 31.08	17.398	10 52 12.2	114.75	0 24.7
24	22 41 28.60	17.394	10 5 40.2	117.90	0 27.7
25	22 48 25.90	17.379	9 17 54.2	120.91	0 30.7
26	22 55 22.72	+ 17.354	− 8 28 57.7	+ 123.77	0 33.7
27	23 2 18.78	17.314	7 38 54.7	126.44	0 36.7
28	23 9 13.69	17.259	6 47 50.3	128.88	0 39.7
29	23 16 7.01	17.180	5 55 50.5	131.05	0 42.7
30	23 22 58.18	17.078	5 3 2.2	132.92	0 45.6
31	23 29 46.56	+ 16.946	− 4 9 33.3	+ 134.48	0 48.5
32	23 36 31.37	+ 16.781	− 3 15 33.1	+ 135.52	0 51.3

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter.	3.55	3.20	2.95	2.77	2.63	2.53	2.46
Hor. Parallax.	9.35	8.44	7.78	7.30	6.95	6.68	6.49

Day of the Month.	5th.	10th.	15th.	20th.	25th.
	″	″	″	″	″
Semidiameter . . .	2.42	2.39	2.39	2.42	2.48
Horizontal Parallax .	6.37	6.30	6.30	6.37	6.55

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	23 16 7.01	+17.180	− 5 55 50.5	+131.05	0 42.7	1	0 58 22.46	−5.545	+9 42 22.5	−51.21	0 22.5
2	23 22 58.18	17.078	5 3 2.2	132.92	0 45.6	2	0 56 3.45	6.018	9 20 21.3	58.73	0 16.3
3	23 29 46.56	16.946	4 9 33.3	134.42	0 48.5	3	0 53 34.75	6.352	8 55 31.5	65.23	0 9.9
4	23 36 31.37	16.781	3 15 33.1	135.52	0 51.3	4	0 50 59.68	6.546	8 28 19.2	70.58	0 3.4 23 56.9
5	23 43 11.75	16.576	2 21 12.2	136.14	0 54.0	5	0 48 21.64	6.602	7 59 13.2	74.70	23 50.3
6	23 49 46.67	+16.326	− 1 26 42.3	+136.25	0 56.6	6	0 45 43.92	−6.520	+7 28 43.7	−77.53	23 43.8
7	23 56 15.00	16.026	− 0 32 16.6	135.79	0 59.2	7	0 43 9.70	6.310	6 57 21.8	79.06	23 37.4
8	0 2 35.48	15.670	+ 0 21 50.5	134.70	1 1.6	8	0 40 41.96	5.982	6 25 38.9	79.31	23 31.2
9	0 8 46.70	15.254	1 15 23.7	132.95	1 3.8	9	0 38 23.36	5.554	5 54 4.5	78.35	23 25.2
10	0 14 47.18	14.773	2 8 6.5	130.50	1 5.9	10	0 36 16.20	5.031	5 23 7.1	76.26	23 19.4
11	0 20 35.33	+14.227	+ 2 59 41.9	+127.33	1 7.7	11	0 34 22.48	−4.434	+4 53 12.2	−73.16	23 13.8
12	0 26 9.51	13.611	3 49 52.5	123.41	1 9.4	12	0 32 43.85	3.776	4 24 42.5	69.18	23 8.5
13	0 31 28.05	12.922	4 38 20.3	118.77	1 10.7	13	0 31 21.58	3.072	3 57 57.4	64.46	23 3.5
14	0 36 29.26	12.166	5 24 47.9	113.41	1 11.8	14	0 30 16.59	2.338	3 33 13.0	59.15	22 58.8
15	0 41 11.49	11.342	6 8 58.4	107.34	1 12.5	15	0 29 29.49	1.585	3 10 42.0	53.37	22 54.3
16	0 45 33.17	+10.454	+ 6 50 34.8	+100.60	1 12.9	16	0 29 0.60	−0.823	+2 50 34.2	−47.24	22 50.2
17	0 49 32.80	9.505	7 29 22.1	93.23	1 12.9	17	0 28 50.00	−0.061	2 32 56.6	40.86	22 46.4
18	0 53 9.00	8.503	8 5 5.4	85.29	1 12.6	18	0 28 57.60	+0.693	2 17 53.6	34.36	22 42.9
19	0 56 20.56	7.453	8 37 31.8	76.82	1 11.8	19	0 29 23.12	1.432	2 5 27.6	27.80	22 39.6
20	0 59 6.45	6.364	9 6 28.6	67.85	1 10.6	20	0 30 6.18	2.153	1 55 39.1	21.25	22 36.7
21	1 1 25.81	+ 5.245	+ 9 31 44.9	+ 58.46	1 9.0	21	0 31 6.28	+2.851	+1 48 27.1	−14.76	22 34.0
22	1 3 18.02	4.103	9 53 11.3	48.69	1 6.9	22	0 32 22.85	3.527	1 43 49.6	8.39	22 31.6
23	1 4 42.71	2.953	10 10 39.2	38.60	1 4.3	23	0 33 55.31	4.175	1 41 43.3	− 2.15	22 29.4
24	1 5 39.79	1.806	10 24 2.3	28.27	1 1.3	24	0 35 43.02	4.797	1 42 4.9	+ 3.92	22 27.5
25	1 6 9.49	+ 0.673	10 33 15.2	17.77	0 57.9	25	0 37 45.36	5.395	1 44 50.0	9.80	22 25.8
26	1 6 12.35	− 0.429	+10 38 14.9	+ 7.19	0 54.0	26	0 40 1.72	+5.965	+1 49 53.9	+15.49	22 24.3
27	1 5 49.27	1.485	10 39 0.9	− 3.36	0 49.6	27	0 42 31.50	6.511	1 57 12.1	20.98	22 23.1
28	1 5 1.52	2.482	10 35 35.1	13.77	0 44.9	28	0 45 14.09	7.034	2 6 39.6	26.27	22 22.1
29	1 3 50.75	3.401	10 28 2.2	23.92	0 39.8	29	0 48 8.94	7.534	2 18 11.4	31.35	22 21.2
30	1 2 18.99	4.229	10 16 30.4	33.64	0 34.3	30	0 51 15.54	8.014	2 31 42.7	36.23	22 20.6
31	1 0 28.64	− 4.946	+10 1 12.0	− 42.79	0 28.6	31	0 54 33.45	+8.475	+2 47 8.6	+40.90	22 20.1
32	0 58 22.46	− 5.545	+ 9 42 22.5	− 51.21	0 22.5	32	0 58 2.22	+8.919	+3 4 24.4	+45.38	22 19.8

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.
	″	″	″	″	″	″		″	″	″	″	″	″
Semidiameter . .	2.60	2.80	3.11	3.56	4.15	4.80	Semidiameter . .	5.38	5.70	5.68	5.39	4.97	4.54
Hor. Parallax . .	6.86	7.38	8.20	9.38	10.92	12.65	Hor. Parallax . .	14.17	15.02	14.96	14.20	13.10	11.96

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

	MAY.						JUNE.				
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	0 54 33.45	+ 8.475	+ 2 47 8.6	+ 40.90	22 20.1	1	3 56 26.21	+ 21.359	+ 19 56 32.9	+ 90.36	23 24.8
2	0 58 2.22	8.919	3 4 24.4	45.38	22 19.8	2	4 5 4.17	21.800	20 32 4.4	87.18	23 29.7
3	1 1 41.42	9.346	3 23 25.3	49.67	22 19.7	3	4 13 52.41	22.217	21 6 13.5	83.49	23 34.7
4	1 5 30.73	9.761	3 44 7.0	53.77	22 19.7	4	4 22 50.34	22.604	21 38 47.9	79.29	23 39.9
5	1 9 29.84	10.163	4 6 24.9	57.69	22 19.9	5	4 31 57.08	22.951	22 9 35.5	74.58	23 45.2
6	1 13 38.47	+ 10.556	+ 4 30 14.8	+ 61.44	22 20.2	6	4 41 11.62	+ 23.252	+ 22 38 24.2	+ 69.39	23 50.6
7	1 17 56.42	10.940	4 55 32.8	65.02	22 20.7	7	4 50 32.79	23.503	23 5 2.8	63.75	23 56.1
8	1 22 23.49	11.316	5 22 14.5	68.43	22 21.4	8	4 59 59.29	23.695	23 29 21.3	57.71	. .
9	1 26 59.55	11.688	5 50 16.0	71.67	22 22.2	9	5 9 29.66	23.825	23 51 10.2	51.32	0 1.7
10	1 31 44.48	12.056	6 19 33.5	74.76	22 23.1	10	5 19 2.39	23.892	24 10 22.5	44.66	0 7.3
11	1 36 38.23	+ 12.423	+ 6 50 3.1	+ 77.69	22 24.2	11	5 28 35.97	+ 23.895	+ 24 26 52.3	+ 37.79	0 13.0
12	1 41 40.75	12.788	7 21 41.1	80.45	22 25.4	12	5 38 8.83	23.833	24 40 35.5	30.80	0 18.6
13	1 46 52.06	13.154	7 54 23.6	83.06	22 26.8	13	5 47 39.45	23.708	24 51 30.1	23.75	0 24.2
14	1 52 12.18	13.523	8 28 6.7	85.51	22 28.3	14	5 57 6.37	23.525	24 59 35.5	16.72	0 29.7
15	1 57 41.19	13.895	9 2 46.7	87.80	22 30.1	15	6 6 28.22	23.288	25 4 53.2	9.78	0 35.2
16	2 3 19.20	+ 14.273	+ 9 38 19.5	+ 89.91	22 31.9	16	6 15 43.77	+ 23.001	+ 25 7 26.0	+ 2.98	0 40.5
17	2 9 6.33	14.656	10 14 41.0	91.85	22 33.9	17	6 24 51.90	22.670	25 7 17.9	− 3.62	0 45.7
18	2 15 2.75	15.047	10 51 47.0	93.61	22 36.0	18	6 33 51.63	22.301	25 4 34.1	9.99	0 50.8
19	2 21 8.64	15.446	11 29 33.1	95.19	22 38.3	19	6 42 42.11	21.900	24 59 20.7	16.08	0 55.7
20	2 27 24.22	15.854	12 7 54.7	96.57	22 40.8	20	6 51 22.63	21.472	24 51 44.5	21.88	1 0.4
21	2 33 49.70	+ 16.271	+ 12 46 46.7	+ 97.73	22 43.5	21	6 59 52.59	+ 21.021	+ 24 41 52.8	− 27.37	1 5.0
22	2 40 25.34	16.700	13 26 3.9	98.66	22 46.3	22	7 8 11.51	20.553	24 29 53.1	32.55	1 9.3
23	2 47 11.37	17.138	14 5 40.5	99.35	22 49.3	23	7 16 19.02	20.071	24 15 53.1	37.39	1 13.5
24	2 54 8.05	17.587	14 45 30.5	99.76	22 52.5	24	7 24 14.82	19.578	24 0 0.8	41.91	1 17.3
25	3 1 15.63	18.046	15 25 27.0	99.89	22 55.8	25	7 31 58.70	19.078	23 42 23.7	46.12	1 21.3
26	3 8 34.31	+ 18.513	+ 16 5 22.8	+ 99.70	22 59.4	26	7 39 30.50	+ 18.572	+ 23 23 9.9	− 49.99	1 24.9
27	3 16 4.30	18.987	16 45 10.1	99.17	23 3.2	27	7 46 50.13	18.063	23 2 26.7	53.56	1 28.3
28	3 23 45.74	19.466	17 24 40.1	98.27	23 7.1	28	7 53 57.51	17.553	22 40 21.6	56.82	1 31.5
29	3 31 38.70	19.947	18 3 43.7	96.96	23 11.3	29	8 0 52.65	17.043	22 17 1.7	59.79	1 34.4
30	3 39 43.18	20.426	18 42 10.9	95.23	23 15.5	30	8 7 35.57	16.532	21 52 34.0	62.47	1 37.2
31	3 47 59.08	+ 20.899	+ 19 19 51.0	+ 93.04	23 20.1	31	8 14 6.20	+ 16.021	+ 21 27 5.4	64.87	1 39.8
32	3 56 26.21	+ 21.359	+ 19 56 32.9	+ 90.36	23 24.8	32	8 20 24.60	+ 15.512	+ 21 0 42.4	67.01	1 42.1

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter.	4.13	3.77	3.45	3.18	2.95	2.76	2.62
Hor. Parallax.	10.88	9.92	9.09	8.37	7.76	7.27	6.91

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
	″	″	″	″	″	″
Semidiameter . .	2.54	2.53	2.58	2.70	2.86	3.07
Hor. Parallax . .	6.70	6.66	6.81	7.11	7.54	8.08

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

JULY.						AUGUST.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	8 14 6.20	+ 16.021	+21 27 5.4	− 64.87	1 39.8	1	9 46 10.71	− 2.946	+ 9 3 1.7	− 11.74	1 9.2
2	8 20 24.60	15.512	21 0 42.4	67.01	1 42.1	2	9 44 50.84	3.707	8 59 35.3	− 5.45	1 3.9
3	8 26 30.80	15.004	20 33 31.2	68.88	1 44.3	3	9 43 13.03	4.439	8 58 41.8	+ 1.01	0 58.4
4	8 32 24.82	14.498	20 5 38.3	70.49	1 46.2	4	9 41 18.09	5.132	9 0 25.1	7.58	0 52.5
5	8 38 6.68	13.992	19 37 9.6	71.86	1 47.9	5	9 39 7.12	5.771	9 4 46.6	14.17	0 46.4
6	8 43 36.38	+ 13.484	+19 8 11.0	− 72.99	1 49.5	6	9 36 41.61	− 6.341	+ 9 11 45.7	+ 20.70	0 40.1
7	8 48 53.92	12.977	18 38 48.1	73.87	1 50.8	7	9 34 3.38	6.829	9 21 19.5	27.04	0 33.5
8	8 53 59.28	12.467	18 9 7.0	74.52	1 51.9	8	9 31 14.58	7.218	9 33 22.3	33.09	0 26.8
9	8 58 52.39	11.957	17 39 13.0	74.94	1 52.9	9	9 28 17.74	7.497	9 47 45.7	38.74	0 19.9
10	9 3 33.20	11.443	17 9 11.6	75.14	1 53.6	10	9 25 15.74	7.650	10 4 18.7	43.88	0 13.0
11	9 8 1.62	+ 10.924	+16 39 8.3	− 75.09	1 54.1	11	9 22 11.74	− 7.663	+10 22 47.4	+ 48.39	0 6.0 23 59.1
12	9 12 17.51	10.399	16 9 9.0	74.81	1 54.4	12	9 19 9.10	7.533	10 42 55.5	52.16	23 52.2
13	9 16 20.71	9.867	15 39 19.0	74.29	1 54.5	13	9 16 11.34	7.255	11 4 24.7	55.13	23 45.5
14	9 20 11.05	9.326	15 9 44.1	73.57	1 54.4	14	9 13 22.02	6.829	11 26 55.0	57.24	23 38.9
15	9 23 48.30	8.776	14 40 29.7	72.59	1 54.1	15	9 10 44.70	6.257	11 50 5.2	58.46	23 32.7
16	9 27 12.20	+ 8.214	+14 11 41.9	− 71.35	1 53.5	16	9 8 22.79	− 5.545	+12 13 33.6	+ 58.76	23 26.7
17	9 30 22.47	7.639	13 43 26.7	69.87	1 52.7	17	9 6 19.52	4.706	12 36 58.4	58.17	23 21.0
18	9 33 18.77	7.050	13 15 50.3	68.13	1 51.7	18	9 4 37.82	3.750	12 59 58.2	56.68	23 15.8
19	9 36 0.76	6.446	12 48 59.0	66.11	1 50.4	19	9 3 20.31	2.693	13 22 12.2	54.35	23 11.0
20	9 38 28.05	5.824	12 22 59.4	63.82	1 48.9	20	9 2 29.21	1.552	13 43 20.8	51.24	23 6.7
21	9 40 40.21	+ 5.185	+11 57 58.3	− 61.24	1 47.2	21	9 2 6.35	− 0.343	+14 3 5.6	+ 47.38	23 2.8
22	9 42 36.80	4.528	11 34 2.6	58.35	1 45.2	22	9 2 13.15	+ 0.917	14 21 9.7	42.85	22 59.5
23	9 44 17.37	3.850	11 11 19.9	55.16	1 42.9	23	9 2 50.63	2.211	14 37 17.2	37.68	22 56.7
24	9 45 41.43	3.153	10 49 57.4	51.66	1 40.3	24	9 3 59.39	3.522	14 51 13.8	31.95	22 54.4
25	9 46 48.53	2.436	10 30 3.0	47.81	1 37.5	25	9 5 39.67	4.834	15 2 46.6	25.70	22 52.6
26	9 47 38.19	+ 1.700	+10 11 44.8	− 43.65	1 34.3	26	9 7 51.34	+ 6.135	+15 11 43.9	+ 19.01	22 51.4
27	9 48 9.99	0.946	9 55 10.7	39.14	1 30.9	27	9 10 33.92	7.408	15 17 55.2	11.89	22 50.6
28	9 48 23.53	+ 0.179	9 40 29.0	34.29	1 27.2	28	9 13 46.61	8.642	15 21 11.8	+ 4.44	22 50.3
29	9 48 18.52	− 0.599	9 27 47.6	29.11	1 23.2	29	9 17 28.32	9.824	15 21 26.0	− 3.30	22 50.5
30	9 47 54.74	1.384	9 17 14.3	23.61	1 18.8	30	9 21 37.67	10.944	15 18 31.9	11.24	22 51.2
31	9 47 12.11	− 2.168	+ 9 8 56.8	− 17.81	1 14.2	31	9 26 13.05	+ 11.991	+15 12 25.4	− 19.32	22 52.2
32	9 46 10.71	− 2.946	+ 9 3 1.7	− 11.74	1 9.2	32	9 31 12.62	+ 12.958	+15 3 3.9	− 27.47	22 53.6

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.	Day of the Month.	4th.	9th.	14th.	19th.	24th.	29th.
	″	″	″	″	″	″		″	″	″	″	″	″
Semidiameter . . .	3.31	3.59	3.93	4.30	4.70	5.10	Semidiameter . . .	5.43	5.56	5.37	4.89	4.27	3.67
Hor. Parallax . . .	8.73	9.48	10.35	11.32	12.38	13.44	Hor. Parallax . . .	14.30	14.63	14.14	12.88	11.24	9.68

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	9 31 12.62	+ 12.958	+ 15 3 3.9	− 27.47	22 53.6	1	12 48 43.14	+ 15.302	− 4 23 32.9	− 113.76	0 11.5
2	9 36 34.35	13.838	14 50 27.0	35.60	22 55.3	2	12 54 49.11	15.197	5 8 50.3	112.67	0 13.7
3	9 42 16.09	14.625	14 34 36.3	43.60	22 57.4	3	13 0 52.64	15.099	5 53 40.4	111.49	0 15.8
4	9 48 15.58	15.316	14 15 35.3	51.44	22 59.7	4	13 6 53.91	15.008	6 38 1.4	110.24	0 17.9
5	9 54 30.50	15.911	13 53 29.5	58.99	23 2.2	5	13 12 53.07	14.924	7 21 51.5	108.92	0 19.9
6	10 0 58.57	+ 16.411	+ 13 28 26.6	− 66.19	23 4.9	6	13 18 50.32	+ 14.848	− 8 5 9.0	− 107.54	0 21.9
7	10 7 37.54	16.820	13 0 35.4	73.00	23 7.8	7	13 24 45.83	14.778	8 47 52.7	106.10	0 23.9
8	10 14 25.23	17.140	12 30 6.4	79.34	23 10.7	8	13 30 39.73	14.715	9 30 1.0	104.59	0 25.9
9	10 21 19.64	17.380	11 57 11.1	85.18	23 13.8	9	13 36 32.18	14.656	10 11 32.5	103.03	0 27.8
10	10 28 18.93	17.548	11 22 1.7	90.51	23 16.9	10	13 42 23.32	14.605	10 52 26.0	101.42	0 29.7
11	10 35 21.42	+ 17.649	+ 10 44 51.1	− 95.29	23 20.0	11	13 48 13.28	+ 14.559	− 11 32 40.1	− 99.75	0 31.6
12	10 42 25.64	17.694	10 5 51.9	99.57	23 23.2	12	13 54 2.18	14.517	12 12 13.6	98.02	0 33.5
13	10 49 30.33	17.690	9 25 15.9	103.35	23 26.3	13	13 59 50.13	14.479	12 51 5.3	96.27	0 35.3
14	10 56 34.43	17.645	8 43 16.1	106.57	23 29.4	14	14 5 37.22	14.445	13 29 14.0	94.45	0 37.1
15	11 3 37.04	17.567	8 0 4.1	109.35	23 32.5	15	14 11 23.52	14.414	14 6 38.4	92.58	0 39.0
16	11 10 37.44	+ 17.462	+ 7 15 50.7	− 111.69	23 35.5	16	14 17 9.12	+ 14.386	− 14 43 17.3	− 90.66	0 40.8
17	11 17 35.07	17.337	6 30 46.1	113.62	23 38.5	17	14 22 54.06	14.359	15 19 9.5	88.69	0 42.6
18	11 24 29.50	17.198	5 44 59.7	115.18	23 41.4	18	14 28 38.38	14.334	15 54 13.7	86.66	0 44.4
19	11 31 20.46	17.046	4 58 40.1	116.40	23 44.2	19	14 34 22.11	14.309	16 28 28.5	84.57	0 46.2
20	11 38 7.64	16.887	4 11 55.1	117.30	23 47.0	20	14 40 5.22	14.283	17 1 52.8	82.44	0 48.0
21	11 44 51.02	+ 16.728	+ 3 24 51.8	− 117.92	23 49.7	21	14 45 47.70	+ 14.256	− 17 34 25.1	− 80.24	0 49.8
22	11 51 30.55	16.566	2 37 36.8	118.29	23 52.4	22	14 51 29.50	14.227	18 6 4.0	77.99	0 51.5
23	11 58 6.18	16.404	1 50 15.7	118.43	23 55.0	23	14 57 10.57	14.195	18 36 48.0	75.66	0 53.3
24	12 4 37.94	16.244	1 2 53.6	118.37	23 57.5	24	15 2 50.77	14.156	19 6 35.5	73.29	0 55.0
25	12 11 5.94	16.090	+ 0 15 35.3	118.13	. .	25	15 8 30.00	14.113	19 35 25.4	70.85	0 56.7
26	12 17 30.32	+ 15.942	− 0 31 35.3	− 117.72	0 0.0	26	15 14 8.10	+ 14.061	− 20 3 15.6	− 68.32	0 58.4
27	12 23 51.21	15.800	1 18 34.3	117.17	0 2.4	27	15 19 44.87	14.000	20 30 4.5	65.74	1 0.1
28	12 30 8.76	15.664	2 5 18.4	116.49	0 4.7	28	15 25 20.06	13.930	20 55 50.5	63.08	1 1.7
29	12 36 23.15	15.536	2 51 44.8	115.68	0 7.0	29	15 30 53.39	13.845	21 20 31.8	60.35	1 3.4
30	12 42 34.55	15.415	3 37 50.3	114.77	0 9.3	30	15 36 24.51	13.745	21 44 6.5	57.53	1 4.9
31	12 48 43.14	+ 15.302	− 4 23 32.9	− 113.76	0 11.5	31	15 41 53.03	+ 13.628	− 22 6 32.6	− 54.64	1 6.4
32	12 54 49.11	+ 15.197	− 5 8 50.3	− 112.67	0 13.7	32	15 47 18.48	+ 13.489	− 22 27 48.1	− 51.65	1 7.9

Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.	Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.
	″	″	″	″	″	″		″	″	″	″	″	″
Semidiameter . . .	3.19	2.84	2.62	2.48	2.41	2.37	Semidiameter . .	2.37	2.39	2.43	2.50	2.59	2.72
Hor. Parallax . . .	8.41	7.50	6.91	6.55	6.34	6.25	Hor. Parallax . .	6.24	6.29	6.40	6.58	6.83	7.16

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	15 47 18.48	+13.489	−22 27 48.1	−51.65	1 7.9
2	15 52 40.33	13.326	22 47 50.9	48.57	1 9.3
3	15 57 57.93	13.136	23 6 38.9	45.41	1 10.7
4	16 3 10.59	12.913	23 24 9.7	42.13	1 12.0
5	16 8 17.47	12.653	23 40 20.4	38.75	1 13.1
6	16 13 17.62	+12.351	−23 55 9.0	−35.28	1 14.2
7	16 18 9.97	12.003	24 8 32.9	31.69	1 15.1
8	16 22 53.31	11.599	24 20 29.0	27.97	1 15.9
9	16 27 26.23	11.135	24 30 54.5	24.10	1 16.5
10	16 31 47.17	10.599	24 39 46.1	20.14	1 16.9
11	16 35 54.36	+ 9.986	−24 47 0.4	−16.02	1 17.0
12	16 39 45.81	9.286	24 52 33.6	11.73	1 16.9
13	16 43 19.31	8.489	24 56 21.8	7.26	1 16.5
·14	16 46 32.40	7.584	24 58 20.6	− 2.60	1 15.8
15	16 49 22.38	6.562	24 58 25.0	+ 2.27	1 14.7
16	16 51 46.36	+ 5.414	−24 56 29.6	+ 7.39	1 13.1
17	16 53 41.22	4.133	24 52 28.6	12.75	1 11.0
18	16 55 3.72	2.717	24 46 15.3	18.41	1 8.5
19	16 55 50.60	+ 1.166	24 37 42.6	24.38	1 5.3
20	16 55 58.70	− 0.512	24 26 43.0	30.65	1 1.5
21	16 55 25.18	− 2.298	−24 13 9.1	+37.23	0 56.9
22	16 54 7.82	4.159	23 56 53.8	44.09	0 51.7
23	16 52 5.27	6.059	23 37 51.6	51.11	0 45.7
24	16 49 17.42	7.921	23 16 0.4	58.14	0 38.9
25	16 45 45.98	9.672	22 51 22.9	64.93	0 31.5
26	16 41 34.59	−11.235	−22 24 8.5	+71.15	0 23.4
27	16 36 48.95	12.516	21 54 35.4	76.40	0 14.8
28	16 31 36.83	13.425	21 23 12.7	80.21	0 5.7 23 56.3
29	16 26 8.00	13.900	20 50 40.6	82.13	23 46.8
30	16 20 33.37	13.904	20 17 48.1	81.84	23 37.5
31	16 15 4.33	−13.439	−19 45 31.3	+79.15	23 28.4
32	16 9 51.76	−12.539	−19 14 47.4	+74.11	23 19.7

DECEMBER.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	16 15 4.33	−13.439	−19 45 31.3	+79.15	23 28.4
2	16 9 51.76	12.539	19 14 47.4	74.11	23 19.7
3	16 5 5.43	11.267	18 46 30.8	66.94	23 11.6
4	16 0 53.22	9.710	18 21 27.7	58.06	23 4.1
5	15 57 20.90	7.959	18 0 13.4	47.98	22 57.4
6	15 54 32.07	− 6.101	−17 43 9.9	+37.24	22 51.4
7	15 52 28.35	4.216	17 30 27.3	26.33	22 46.1
8	15 51 9.69	2.354	17 22 4.3	15.66	22 41.5
9	15 50 34.79	− 0.571	17 17 51.0	+ 5.58	22 37.7
10	15 50 41.43	+ 1.104	17 17 30.0	− 3.69	22 34.5
11	15 51 26.83	+ 2.657	−17 20 40.8	−12.04	22 31.8
12	15 52 47.92	4.078	17 26 59.9	19.39	22 29.8
13	15 54 41.54	5.369	17 36 3.5	25.74	22 28.2
14	15 57 4.60	6.532	17 47 27.7	31.12	22 27.0
15	15 59 54.15	7.578	18 0 49.8	35.58	22 26.3
16	16 3 7.45	+ 8.513	−18 15 48.7	−39.19	22 25.9
17	16 6 41.98	9.349	18 32 4.9	42.04	22 25.8
18	16 10 35.50	10.097	18 49 20.9	44.19	22 26.0
19	16 14 45.99	10.765	19 7 20.9	45.71	22 26.5
20	16 19 11.66	11.363	19 25 50.7	46.69	22 27.2
21	16 23 50.93	+11.900	−19 44 37.9	−47.17	22 28.1
22	16 28 42.41	12.382	20 3 31.3	47.22	22 29.2
23	16 33 44.87	12.816	20 22 21.3	46.89	22 30.5
24	16 38 57.24	13.209	20 40 59.2	46.22	22 31.9
25	16 44 18.58	13.564	20 59 17.3	45.25	22 33.4
26	16 49 48.06	+13.887	−21 17 8.9	−44.01	22 35.1
27	16 55 24.95	14.182	21 34 28.1	42.55	22 36.9
28	17 1 8.62	14.453	21 51 9.5	40.87	22 38.7
29	17 6 58.51	14.701	22 7 8.4	39.01	22 40.7
30	17 12 54.11	14.929	22 22 20.7	36.98	22 42.8
31	17 18 54.98	+15.140	−22 36 42.4	−34.81	22 45.0
32	17 25 0.72	+15.335	−22 50 10.4	−32.50	22 47.2

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.
	″	″	″	″	″	″
Semidiameter .	2.90	3.12	3.46	3.89	4.42	4.86
Hor. Parallax .	7.63	8.26	9.11	10.26	11.65	12.80

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	32d.
	″	″	″	″	″	″	″
Semidiameter	4.85	4.39	3.83	3.38	3.05	2.82	2.66
Hor. Parallax	12.78	11.56	10.09	8.91	8.04	7.43	7.00

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	17 58 32.40	+13.703	−23 26 11.4	− 6.62	23 19.1
2	18 4 1.39	13.711	23 28 28.5	4.81	23 20.7
3	18 9 30.52	13.716	23 30 2.1	2.99	23 22.2
4	18 14 59.74	13.718	23 30 52.1	− 1.17	23 23.8
5	18 20 28.99	13.717	23 30 58.5	+ 0.65	23 25.3
6	18 25 58.17	+13.714	−23 30 21.1	+ 2.47	23 26.9
7	18 31 27.25	13.709	23 29 0.0	4.29	23 28.4
8	18 36 56.21	13.702	23 26 55.3	6.11	23 29.9
9	18 42 24.96	13.692	23 24 7.0	7.92	23 31.5
10	18 47 53.44	13.679	23 20 35.1	9.73	23 33.0
11	18 53 21.59	+13.664	−23 16 19.8	+11.53	23 34.5
12	18 58 49.32	13.646	23 11 21.4	13.33	23 36.0
13	19 4 16.60	13.626	23 5 40.1	15.12	23 37.5
14	19 9 43.37	13.604	22 59 16.0	16.89	23 39.0
15	19 15 9.59	13.580	22 52 9.4	18.65	23 40.5
16	19 20 35.20	+13.553	−22 44 20.7	+20.40	23 42.0
17	19 26 0.14	13.524	22 35 50.1	22.14	23 43.5
18	19 31 24.37	13.493	22 26 37.9	23.86	23 45.0
19	19 36 47.83	13.460	22 16 44.7	25.56	23 46.4
20	19 42 10.48	13.425	22 6 10.8	27.25	23 47.8
21	19 47 32.27	+13.389	−21 54 56.7	+28.92	23 49.2
22	19 52 53.16	13.351	21 43 2.7	30.57	23 50.6
23	19 58 13.12	13.311	21 30 29.4	32.20	23 52.0
24	20 3 32.08	13.269	21 17 17.3	33.81	23 53.3
25	20 8 50.02	13.226	21 3 27.0	35.39	23 54.6
26	20 14 6.90	+13.181	−20 48 59.0	+36.95	23 55.9
27	20 19 22.70	13.134	20 33 54.0	38.49	23 57.2
28	20 24 37.38	13.086	20 18 12.4	40.00	23 58.5
29	20 29 50.93	13.038	20 1 54.9	41.48	23 59.8
30	20 35 3.31	12.990	19 45 2.2	42.93	. . .
31	20 40 14.50	+12.941	−19 27 35.0	+44.34	0 1.1
32	20 45 24.50	+12.891	−19 9 33.8	+45.73	0 2.3

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter.	5.12	5.09	5.06	5.04	5.03	5.01	5.00
Hor. Parallax.	5.27	5.24	5.22	5.20	5.18	5.16	5.15

FEBRUARY.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	20 45 24.50	+12.891	−19 9 33.8	+45.73	0 2.3
2	20 50 33.28	12.840	18 50 59.3	47.10	0 3.4
3	20 55 40.82	12.789	18 31 52.3	48.44	0 4.6
4	21 0 47.13	12.738	18 12 13.5	49.76	0 5.8
5	21 5 52.20	12.686	17 52 3.5	51.05	0 7.0
6	21 10 56.04	+12.634	−17 31 23.0	+52.31	0 8.1
7	21 15 58.64	12.582	17 10 12.8	53.54	0 9.2
8	21 21 0.01	12.531	16 48 33.6	54.73	0 10.3
9	21 26 0.14	12.480	16 26 26.2	55.89	0 11.4
10	21 30 59.05	12.429	16 3 51.2	57.01	0 12.4
11	21 35 56.73	+12.379	−15 40 49.5	+58.10	0 13.4
12	21 40 53.22	12.329	15 17 21.7	59.17	0 14.4
13	21 45 48.54	12.280	14 53 28.7	60.21	0 15.4
14	21 50 42.69	12.232	14 29 11.2	61.22	0 16.4
15	21 55 35.68	12.184	14 4 29.9	62.20	0 17.3
16	22 0 27.54	+12.137	−13 39 25.6	+63.16	0 18.2
17	22 5 18.29	12.091	13 13 59.1	64.08	0 19.1
18	22 10 7.94	12.046	12 48 11.1	64.96	0 20.0
19	22 14 56.52	12.002	12 22 2.4	65.80	0 20.9
20	22 19 44.06	11.960	11 55 33.7	66.59	0 21.7
21	22 24 30.58	+11.919	−11 28 46.0	+67.36	0 22.5
22	22 29 16.10	11.879	11 1 40.0	68.11	0 23.3
23	22 34 0.65	11.839	10 34 16.4	68.83	0 24.1
24	22 38 44.26	11.800	10 6 35.9	69.52	0 24.9
25	22 43 26.95	11.761	9 38 39.4	70.17	0 25.7
26	22 48 8.77	+11.724	− 9 10 27.7	+70.79	0 26.5
27	22 52 49.74	11.689	8 42 1.5	71.38	0 27.2
28	22 57 29.90	11.656	8 13 21.5	71.94	0 27.9
29	23 2 9.28	11.624	7 44 28.6	72.46	0 28.6
30	23 6 47.90	11.594	7 15 23.5	72.95	0 29.3
31	23 11 25.80	+11.565	− 6 46 7.0	+73.41	0 30.0
32	23 16 3.03	+11.537	− 6 16 39.9	+73.84	0 30.7

Day of the Month.	5th.	10th.	15th.	20th.	25th.
	″	″	″	″	″
Semidiameter . . .	5.00	4.99	4.99	4.98	4.98
Horizontal Parallax .	5.14	5.13	5.13	5.13	5.14

Note.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	23 2 9.28	+11.624	−7 44 28.6	+72.46	0 28.6	1	1 23 42.53	+11.486	+ 7 50 30.1	+73.43	0 48.0
2	23 6 47.90	11.594	7 15 23.5	72.95	0 29.3	2	1 28 18.46	11.508	8 19 47.2	72.98	0 48.6
3	23 11 25.80	11.565	6 46 7.0	73.41	0 30.0	3	1 32 54.95	11.532	8 48 52.8	72.50	0 49.3
4	23 16 3.03	11.537	6 16 39.9	73.84	0 30.7	4	1 37 32.04	11.558	9 17 46.3	71.98	0 50.0
5	23 20 39.63	11.511	5 47 2.7	74.24	0 31.4	5	1 42 9.76	11.585	9 46 26.9	71.42	0 50.7
6	23 25 15.64	+11.487	−5 17 16.3	+74.61	0 32.1	6	1 46 48.14	+11.614	+10 14 53.8	+70.82	0 51.4
7	23 29 51.09	11.466	4 47 21.5	74.94	0 32.7	7	1 51 27.23	11.644	10 43 6.4	70.19	0 52.1
8	23 34 26.03	11.446	4 17 19.1	75.24	0 33.4	8	1 56 7.05	11.676	11 11 3.8	69.54	0 52.8
9	23 39 0.49	11.427	3 47 9.7	75.51	0 34.0	9	2 0 47.66	11.709	11 38 45.4	68.87	0 53.5
10	23 43 34.53	11.410	3 16 54.1	75.75	0 34.6	10	2 5 29.06	11.743	12 6 10.3	68.17	0 54.3
11	23 48 8.18	+11.395	−2 46 32.9	+75.97	0 35.2	11	2 10 11.30	+11.778	+12 33 17.8	+67.45	0 55.1
12	23 52 41.50	11.382	2 16 7.0	76.16	0 35.8	12	2 14 54.41	11.815	13 0 7.3	66.69	0 55.9
13	23 57 14.52	11.371	1 45 37.1	76.32	0 36.4	13	2 19 38.42	11.853	13 26 38.0	65.89	0 56.7
14	0 1 47.28	11.361	1 15 3.9	76.45	0 37.0	14	2 24 23.37	11.892	13 52 49.1	65.06	0 57.5
15	0 6 19.84	11.353	0 44 28.0	76.54	0 37.6	15	2 29 9.27	11.932	14 18 39.9	64.19	0 58.3
16	0 10 52.23	+11.347	−0 13 50.3	+76.60	0 38.2	16	2 33 56.14	+11.971	+14 44 9.6	+63.28	0 59.1
17	0 15 24.50	11.343	+0 16 48.6	76.63	0 38.8	17	2 38 44.02	12.017	15 9 17.5	62.34	1 0.0
18	0 19 56.70	11.341	0 47 27.9	76.63	0 39.4	18	2 43 32.93	12.060	15 34 2.9	61.38	1 0.9
19	0 24 28.87	11.341	1 18 6.9	76.60	0 40.0	19	2 48 22.87	12.104	15 58 25.0	60.39	1 1.8
20	0 29 1.04	11.342	1 48 44.8	76.54	0 40.6	20	2 53 13.85	12.148	16 22 23.1	59.38	1 2.7
21	0 33 33.26	+11.345	+2 19 20.9	+76.45	0 41.2	21	2 58 5.92	+12.192	+16 45 56.3	+58.35	1 3.6
22	0 38 5.57	11.349	2 49 54.6	76.34	0 41.8	22	3 2 59.06	12.237	17 9 4.0	57.28	1 4.5
23	0 42 38.01	11.355	3 20 25.0	76.20	0 42.4	23	3 7 53.29	12.282	17 31 45.4	56.17	1 5.5
24	0 47 10.63	11.363	3 50 51.5	76.02	0 43.0	24	3 12 48.61	12.327	17 53 59.8	55.03	1 6.5
25	0 51 43.45	11.373	4 21 13.1	75.81	0 43.6	25	3 17 45.03	12.373	18 15 46.4	53.86	1 7.5
26	0 56 16.54	+11.384	+4 51 29.3	+75.56	0 44.2	26	3 22 42.53	+12.419	+18 37 4.5	+52.65	1 8.5
27	1 0 49.90	11.397	5 21 39.3	75.27	0 44.8	27	3 27 41.14	12.465	18 57 53.4	51.41	1 9.5
28	1 5 23.60	11.412	5 51 42.4	74.95	0 45.4	28	3 32 40.87	12.511	19 18 12.4	50.15	1 10.5
29	1 9 57.68	11.428	6 21 37.7	74.60	0 46.0	29	3 37 41.69	12.556	19 38 0.9	48.86	1 11.6
30	1 14 32.18	11.446	6 51 24.6	74.23	0 46.6	30	3 42 43.60	12.601	19 57 18.1	47.54	1 12.7
31	1 19 7.12	+11.465	+7 21 2.3	+73.84	0 47.3	31	3 47 46.57	+12.646	+20 16 3.2	+46.20	1 13.8
32	1 23 42.53	+11.486	+7 50 30.1	+73.43	0 48.0	32	3 52 50.60	+12.690	+20 34 15.5	+44.83	1 14.9

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.
	″	″	″	″	″	″		″	″	″	″	″	″
Semidiameter . .	4.99	5.00	5.01	5.03	5.05	5.07	Semidiameter . .	5.10	5.13	5.17	5.21	5.25	5.30
Hor. Parallax . .	5.14	5.15	5.16	5.18	5.20	5.22	Hor. Parallax . .	5.25	5.28	5.32	5.36	5.41	5.46

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

MAY.						JUNE.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	3 47 46.57	+ 12.646	+20 16 3.2	+ 46.20	1 13.8	1	6 30 34.73	+ 13.294	+24 43 36.6	− 5.34	1 54.5
2	3 52 50.60	12.690	20 34 15.5	44.83	1 14.9	2	6 35 53.58	13.278	24 41 6.8	7.13	1 55.9
3	3 57 55.68	12.733	20 51 54.4	43.43	1 16.0	3	6 41 11.99	13.259	24 37 54.2	8.91	1 57.3
4	4 3 1.79	12.776	21 8 59.4	42.00	1 17.2	4	6 46 29.90	13.236	24 33 58.9	10.69	1 58.6
5	4 8 8.92	12.818	21 25 29.7	40.54	1 18.4	5	6 51 47.25	13.210	24 29 21.1	12.46	1 59.9
6	4 13 17.04	+ 12.859	+21 41 24.8	+ 39.05	1 19.6	6	6 57 3.99	+ 13.182	+24 24 0.9	− 14.22	2 1.2
7	4 18 26.13	12.899	21 56 44.0	37.54	1 20.8	7	7 2 20.05	13.152	24 17 58.7	15.97	2 2.5
8	4 23 36.17	12.938	22 11 26.8	36.01	1 22.0	8	7 7 35.39	13.121	24 11 14.6	17.70	2 3.8
9	4 28 47.14	12.976	22 25 32.6	34.46	1 23.2	9	7 12 49.95	13.089	24 3 49.1	19.42	2 5.1
10	4 33 59.00	13.012	22 39 0.9	32.89	1 24.5	10	7 18 3.68	13.055	23 55 42.5	21.13	2 6.4
11	4 39 11.71	+ 13.047	+22 51 51.1	+ 31.29	1 25.8	11	7 23 16.53	+ 13.018	+23 46 55.1	− 22.82	2 7.7
12	4 44 25.25	13.081	23 4 2.7	29.67	1 27.1	12	7 28 28.46	12.979	23 37 27.4	24.49	2 9.0
13	4 49 39.58	13.113	23 15 35.3	28.03	1 28.4	13	7 33 39.42	12.937	23 27 19.6	26.14	2 10.2
14	4 54 54.66	13.143	23 26 28.4	26.38	1 29.7	14	7 38 49.35	12.893	23 16 32.4	27.78	2 11.4
15	5 0 10.45	13.171	23 36 41.6	24.71	1 31.0	15	7 43 58.23	12.847	23 5 6.2	29.40	2 12.6
16	5 5 26.89	+ 13.198	+23 46 14.4	+ 23.02	1 32.4	16	7 49 6.01	+ 12.800	+22 53 1.4	− 31.00	2 13.8
17	5 10 43.96	13.222	23 55 6.4	21.31	1 33.7	17	7 54 12.64	12.751	22 40 18.3	32.58	2 15.0
18	5 16 1.59	13.244	24 3 17.3	19.59	1 35.0	18	7 59 18.10	12.701	22 26 57.8	34.13	2 16.1
19	5 21 19.73	13.264	24 10 46.8	17.86	1 36.4	19	8 4 22.34	12.650	22 13 0.3	35.66	2 17.2
20	5 26 38.33	13.282	24 17 34.5	16.11	1 37.8	20	8 9 25.34	12.598	21 58 26.3	37.16	2 18.4
21	5 31 57.32	+ 13.298	+24 23 40.1	+ 14.35	1 39.2	21	8 14 27.06	+ 12.545	+21 43 16.5	− 38.64	2 19.5
22	5 37 16.65	13.312	24 29 3.5	12.58	1 40.6	22	8 19 27.47	12.490	21 27 31.4	40.10	2 20.6
23	5 42 36.26	13.323	24 33 44.4	10.80	1 42.0	23	8 24 26.55	12.434	21 11 11.6	41.53	2 21.6
24	5 47 56.09	13.331	24 37 42.4	9.02	1 43.4	24	8 29 24.27	12.377	20 54 17.7	42.93	2 22.6
25	5 53 16.07	13.336	24 40 57.6	7.23	1 44.8	25	8 34 20.61	12.318	20 36 50.5	44.31	2 23.6
26	5 58 36.14	+ 13.337	+24 43 29.8	+ 5.44	1 46.1	26	8 39 15.54	+ 12.259	+20 18 50.6	− 45.66	2 24.6
27	6 3 56.23	13.335	24 45 18.9	3.65	1 47.5	27	8 44 9.06	12.199	20 0 18.6	46.98	2 25.5
28	6 9 16.28	13.331	24 46 24.8	1.85	1 48.9	28	8 49 1.14	12.139	19 41 15.1	48.28	2 26.4
29	6 14 36.23	13.325	24 46 47.5	+ 0.05	1 50.3	29	8 53 51.78	12.079	19 21 41.0	49.55	2 27.3
30	6 19 56.00	13.317	24 46 27.0	− 1.75	1 51.7	30	8 58 40.96	12.019	19 1 36.8	50.79	2 28.2
31	6 25 15.52	+ 13.307	+24 45 23.4	− 3.55	1 53.1	31	9 3 28.67	+ 11.958	+18 41 3.3	− 52.00	2 29.1
32	6 30 34.73	+ 13.294	+24 43 36.6	− 5.34	1 54.5	32	9 8 14.92	+ 11.897	+18 20 1.2	− 53.18	2 29.9

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter.	5.36	5.42	5.49	5.56	5.65	5.74	5.85
Hor. Parallax.	5.52	5.59	5.66	5.74	5.82	5.91	6.01

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
	″	″	″	″	″	″
Semidiameter. .	5.96	6.07	6.20	6.34	6.49	6.64
Hor. Parallax. .	6.13	6.25	6.38	6.52	6.67	6.84

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

JULY.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	9 3 28.67	+ 11.958	+ 18 41 3.3	– 52.00	2 29.1
2	9 8 14.92	11.897	18 20 1.2	53.18	2 29.9
3	9 12 59.70	11.835	17 58 31.2	54.33	2 30.7
4	9 17 43.01	11.774	17 36 33.9	55.45	2 31.5
5	9 22 24.85	11.713	17 14 10.2	56.53	2 32.2
6	9 27 5.24	+ 11.653	+ 16 51 20.6	– 57.59	2 32.9
7	9 31 44.18	11.593	16 28 5.9	58.62	2 33.6
8	9 36 21.68	11.533	16 4 26.7	59.62	2 34.3
9	9 40 57.77	11.474	15 40 23.9	60.59	2 35.0
10	9 45 32.43	11.415	15 15 58.2	61.54	2 35.6
11	9 50 5.71	+ 11.358	+ 14 51 10.2	– 62.46	2 36.2
12	9 54 37.63	11.302	14 26 0.6	63.35	2 36.8
13	9 59 8.19	11.246	14 0 30.1	64.20	2 37.4
14	10 3 37.42	11.191	13 34 39.5	65.02	2 37.9
15	10 8 5.34	11.136	13 8 29.5	65.81	2 38.4
16	10 12 31.96	+ 11.082	+ 12 42 0.7	– 66.58	2 38.9
17	10 16 57.31	11.029	12 15 13.7	67.32	2 39.4
18	10 21 21.41	10.978	11 48 9.4	68.03	2 39.9
19	10 25 44.29	10.928	11 20 48.7	68.71	2 40.3
20	10 30 5.97	10.879	10 53 12.1	69.35	2 40.7
21	10 34 26.46	+ 10.831	+ 10 25 20.1	– 69.97	2 41.1
22	10 38 45.80	10.783	9 57 13.4	70.56	2 41.5
23	10 43 4.01	10.736	9 28 53.0	71.12	2 41.9
24	10 47 21.12	10.690	9 0 19.4	71.65	2 42.2
25	10 51 37.13	10.645	8 31 33.4	72.16	2 42.5
26	10 55 52.07	+ 10.601	+ 8 2 35.6	– 72.64	2 42.8
27	11 0 5.98	10.558	7 33 26.7	73.09	2 43.1
28	11 4 18.89	10.517	7 4 7.5	73.51	2 43.4
29	11 8 30.81	10.477	6 34 38.6	73.90	2 43.7
30	11 12 41.78	10.438	6 5 0.7	74.25	2 43.9
31	11 16 51.81	+ 10.400	+ 5 35 14.4	– 74.58	2 44.1
32	11 21 0.93	+ 10.363	+ 5 5 20.5	– 74.89	2 44.3

AUGUST.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	11 21 0.93	+ 10.363	+ 5 5 20.5	– 74.89	2 44.3
2	11 25 9.18	10.327	4 35 19.6	75.17	2 44.5
3	11 29 16.58	10.292	4 5 12.4	75.42	2 44.7
4	11 33 23.17	10.258	3 34 59.5	75.64	2 44.8
5	11 37 28.98	10.226	3 4 41.5	75.84	2 45.0
6	11 41 34.04	+ 10.195	+ 2 34 19.1	– 76.02	2 45.2
7	11 45 38.38	10.166	2 3 52.9	76.17	2 45.3
8	11 49 42.03	10.138	1 33 23.5	76.29	2 45.4
9	11 53 45.03	10.112	1 2 51.5	76.37	2 45.5
10	11 57 47.41	10.087	0 32 17.5	76.43	2 45.6
11	12 1 49.19	+ 10.063	+ 0 1 42.2	– 76.47	2 45.7
12	12 5 50.42	10.040	– 0 28 53.8	76.49	2 45.8
13	12 9 51.11	10.018	0 59 30.0	76.49	2 45.9
14	12 13 51.30	9.998	1 30 5.6	76.46	2 45.9
15	12 17 51.02	9.979	2 0 40.1	76.41	2 46.0
16	12 21 50.28	+ 9.961	– 2 31 13.1	– 76.33	2 46.0
17	12 25 49.10	9.943	3 1 43.8	76.22	2 46.0
18	12 29 47.52	9.926	3 32 11.3	76.08	2 46.0
19	12 33 45.55	9.910	4 2 35.2	75.91	2 46.1
20	12 37 43.22	9.895	4 32 55.1	75.72	2 46.1
21	12 41 40.54	+ 9.881	– 5 3 10.2	– 75.51	2 46.1
22	12 45 37.53	9.868	5 33 19.9	75.27	2 46.1
23	12 49 34.21	9.855	6 3 23.6	75.01	2 46.1
24	12 53 30.59	9.843	6 33 20.6	74.73	2 46.1
25	12 57 26.67	9.831	7 3 10.4	74.42	2 46.1
26	13 1 22.48	+ 9.819	– 7 32 52.3	– 74.08	2 46.1
27	13 5 18.01	9.808	8 2 25.6	73.71	2 46.0
28	13 9 13.28	9.797	8 31 49.7	73.31	2 46.0
29	13 13 8.29	9.787	9 1 4.1	72.88	2 46.0
30	13 17 3.06	9.777	9 30 8.1	72.43	2 45.9
31	13 20 57.59	+ 9.767	– 9 59 1.0	– 71.95	2 45.9
32	13 24 51.88	+ 9.757	– 10 27 42.3	– 71.45	2 45.9

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
	″	″	″	″	″	″
Semidiameter . . .	6.82	7.01	7.21	7.43	7.67	7.94
Hor. Parallax . .	7.02	7.21	7.42	7.65	7.90	8.17

Day of the Month.	4th.	9th.	14th.	19th.	24th.	29th.
	″	″	″	″	″	″
Semidiameter . . .	8.22	8.53	8.87	9.23	9.63	10.08
Hor. Parallax . . .	8.46	8.78	9.13	9.51	9.92	10.37

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	13 24 51.88	+9.757	−10 27 42.3	−71.45	2 45.9
2	13 28 45.93	9.747	10 56 11.3	70.93	2 45.8
3	13 32 39.76	9.738	11 24 27.6	70.40	2 45.8
4	13 36 33.37	9.729	11 52 30.6	69.84	2 45.7
5	13 40 26.77	9.720	12 20 19.6	69.25	2 45.7
6	13 44 19.94	+9.711	−12 47 54.1	−68.63	2 45.6
7	13 48 12.88	9.702	13 15 13.4	67.99	2 45.5
8	13 52 5.59	9.692	13 42 17.1	67.32	2 45.5
9	13 55 58.08	9.681	14 9 4.6	66.63	2 45.4
10	13 59 50.33	9.670	14 35 35.3	65.92	2 45.4
11	14 3 42.31	+9.658	−15 1 48.6	−65.19	2 45.3
12	14 7 34.01	9.646	15 27 44.1	64.43	2 45.2
13	14 11 25.43	9.634	15 53 21.2	63.65	2 45.1
14	14 15 16.53	9.621	16 18 39.4	62.85	2 45.0
15	14 19 7.29	9.607	16 43 38.1	62.03	2 44.9
16	14 22 57.67	+9.591	−17 8 16.8	−61.19	2 44.8
17	14 26 47.65	9.573	17 32 34.9	60.32	2 44.7
18	14 30 37.17	9.553	17 56 32.0	59.43	2 44.6
19	14 34 26.21	9.531	18 20 7.4	58.52	2 44.5
20	14 38 14.69	9.507	18 43 20.6	57.58	2 44.4
21	14 42 2.57	+9.480	−19 6 11.2	−56.62	2 44.3
22	14 45 49.78	9.451	19 28 38.5	55.64	2 44.1
23	14 49 36.27	9.420	19 50 42.0	54.64	2 43.9
24	14 53 21.95	9.386	20 12 21.3	53.62	2 43.7
25	14 57 6.73	9.348	20 33 35.9	52.58	2 43.5
26	15 0 50.54	+9.306	−20 54 25.2	−51.52	2 43.3
27	15 4 33.31	9.260	21 14 48.6	50.43	2 43.1
28	15 8 14.95	9.210	21 34 45.8	49.32	2 42.8
29	15 11 55.35	9.156	21 54 16.2	48.19	2 42.5
30	15 15 34.42	9.099	22 13 19.4	47.05	2 42.2
31	15 19 12.06	+9.037	−22 31 55.0	−45.89	2 41.9
32	15 22 48.17	+8.971	−22 50 2.6	−44.72	2 41.6

Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.
	″	″	″	″	″	″
Semidiameter. . .	10.56	11.10	11.70	12.36	13.09	13.92
Hor. Parallax. . .	10.88	11.43	12.04	12.72	13.49	14.34

OCTOBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	15 19 12.06	+9.037	−22 31 55.0	−45.89	2 41.9
2	15 22 48.17	8.971	22 50 2.6	44.72	2 41.6
3	15 26 22.63	8.900	23 7 41.8	43.53	2 41.2
4	15 29 55.32	8.824	23 24 52.2	42.33	2 40.8
5	15 33 26.13	8.743	23 41 33.5	41.11	2 40.4
6	15 36 54.93	+8.656	−23 57 45.3	−39.88	2 39.9
7	15 40 21.58	8.564	24 13 27.3	38.63	2 39.4
8	15 43 45.93	8.465	24 28 39.1	37.36	2 38.9
9	15 47 7.84	8.360	24 43 20.5	36.08	2 38.3
10	15 50 27.16	8.249	24 57 31.3	34.79	2 37.7
11	15 53 43.72	+8.130	−25 11 11.0	−33.49	2 37.0
12	15 56 57.32	8.004	25 24 19.5	32.19	2 36.3
13	16 0 7.84	7.870	25 36 56.4	30.88	2 35.5
14	16 3 15.04	7.728	25 49 1.5	29.56	2 34.7
15	16 6 18.74	7.578	26 0 34.5	28.23	2 33.8
16	16 9 18.72	+7.419	−26 11 35.2	−26.88	2 32.8
17	16 12 14.77	7.250	26 22 3.4	25.51	2 31.8
18	16 15 6.64	7.071	26 31 58.8	24.12	2 30.7
19	16 17 54.10	6.882	26 41 21.0	22.72	2 29.5
20	16 20 36.90	6.683	26 50 9.8	21.31	2 28.3
21	16 23 14.79	+6.472	−26 58 25.0	−19.89	2 27.0
22	16 25 47.47	6.249	27 6 6.1	18.47	2 25.6
23	16 28 14.65	6.014	27 13 12.6	17.04	2 24.1
24	16 30 36.04	5.767	27 19 44.2	15.59	2 22.5
25	16 32 51.36	5.508	27 25 40.6	14.12	2 20.8
26	16 35 0.31	+5.236	−27 31 1.3	−12.62	2 19.0
27	16 37 2.59	4.952	27 35 45.7	11.09	2 17.1
28	16 38 57.89	4.654	27 39 53.2	9.54	2 15.1
29	16 40 45.90	4.344	27 43 23.4	7.96	2 13.0
30	16 42 26.32	4.022	27 46 15.7	6.36	2 10.8
31	16 43 58.88	+3.689	−27 48 29.4	− 4.73	2 8.4
32	16 45 23.26	+3.341	−27 50 3.6	− 3.07	2 5.8

Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.
	″	″	″	″	″	″
Semidiameter . .	14.86	15.91	17.09	18.44	19.95	21.65
Hor. Parallax . .	15.30	16.38	17.60	18.98	20.54	22.31

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	16 45 23.26	+ 3.341	− 27 50 3.6	− 3.07	2 5.8
2	16 46 39.12	2.980	27 50 57.6	− 1.39	2 3.0
3	16 47 46.20	2.608	27 51 10.5	+ 0.33	2 0.1
4	16 48 44.22	2.225	27 50 41.5	2.09	1 57.1
5	16 49 32.93	1.832	27 49 29.5	3.90	1 54.0
6	16 50 12.09	+ 1.430	− 27 47 33.5	+ 5.76	1 50.7
7	16 50 41.47	1.018	27 44 52.4	7.68	1 47.3
8	16 51 0.88	0.598	27 41 24.9	9.64	1 43.7
9	16 51 10.13	+ 0.171	27 37 9.9	11.65	1 39.9
10	16 51 9.07	− 0.260	27 32 6.3	13.70	1 35.9
11	16 50 57.60	− 0.697	− 27 26 12.8	+ 15.80	1 31.8
12	16 50 35.62	1.134	27 19 27.8	17.96	1 27.5
13	16 50 3.20	1.567	27 11 50.5	20.17	1 23.1
14	16 49 20.41	1.998	27 3 19.8	22.43	1 18.5
15	16 48 27.32	2.425	26 53 54.4	24.72	1 13.7
16	16 47 24.05	− 2.845	− 26 43 33.5	+ 27.04	1 8.6
17	16 46 10.82	3.254	26 32 16.7	29.38	1 3.4
18	16 44 47.96	3.648	26 20 3.3	31.74	0 58.1
19	16 43 15.84	4.025	26 6 53.2	34.10	0 52.7
20	16 41 34.93	4.380	25 52 46.6	36.43	0 47.1
21	16 39 45.80	− 4.710	− 25 37 44.4	+ 38.72	0 41.3
22	16 37 49.07	5.012	25 21 47.8	40.95	0 35.4
23	16 35 45.47	5.282	25 4 58.7	43.10	0 29.4
24	16 33 35.83	5.515	24 47 19.1	45.14	0 23.4
25	16 31 21.12	5.706	24 28 52.2	47.02	0 17.3
26	16 29 2.30	− 5.856	− 24 9 42.1	+ 48.73	0 11.1
27	16 26 40.31	5.968	23 49 53.3	50.24	0 4.7 23 58.4
28	16 24 16.14	6.038	23 29 30.2	51.55	23 52.1
29	16 21 50.84	6.062	23 8 38.1	52.63	23 45.7
30	16 19 25.51	6.040	22 47 23.1	53.46	23 39.4
31	16 17 1.25	− 5.973	− 22 25 52.0	+ 53.99	23 33.1
32	16 14 39.14	− 5.862	− 22 4 11.8	+ 54.23	23 26.9

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.
	″	″	″	″	″	″
Semidiameter .	23.53	25.54	27.61	29.55	31.14	32.08
Hor. Parallax .	24.24	26.30	28.45	30.43	32.05	33.03

DECEMBER.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	16 17 1.25	− 5.973	− 22 25 52.0	+ 53.99	23 33.1
2	16 14 39.14	5.862	22 4 11.8	54.23	23 26.9
3	16 12 20.19	5.711	21 42 29.2	54.18	23 20.7
4	16 10 5.34	5.522	21 20 51.1	53.85	23 14.6
5	16 7 55.48	5.295	20 59 24.3	53.24	23 8.6
6	16 5 51.45	− 5.035	− 20 38 15.5	+ 52.35	23 2.8
7	16 3 54.03	4.745	20 17 31.5	51.18	22 57.0
8	16 2 3.89	4.429	19 57 18.7	49.77	22 51.4
9	16 0 21.63	4.089	19 37 42.4	48.14	22 45.9
10	15 58 47.76	3.730	19 18 47.9	46.30	22 40.5
11	15 57 22.70	− 3.356	− 19 0 39.9	+ 44.29	22 35.3
12	15 56 6.78	2.969	18 43 22.3	42.11	22 30.3
13	15 55 0.27	2.572	18 26 58.6	39.81	22 25.4
14	15 54 3.35	2.170	18 11 31.5	37.41	22 20.7
15	15 53 16.14	1.764	17 57 2.9	34.93	22 16.1
16	15 52 38.69	− 1.356	− 17 43 34.7	+ 32.39	22 11.7
17	15 52 11.03	0.949	17 31 8.1	29.82	22 7.5
18	15 51 53.12	0.544	17 19 43.5	27.23	22 3.4
19	15 51 44.88	− 0.143	17 9 20.9	24.65	21 59.5
20	15 51 46.21	+ 0.253	17 0 0.3	22.08	21 55.7
21	15 51 56.99	+ 0.644	− 16 51 41.1	+ 19.56	21 52.1
22	15 52 17.08	1.029	16 44 22.3	17.05	21 48.6
23	15 52 46.30	1.406	16 38 2.8	14.60	21 45.3
24	15 53 24.47	1.774	16 32 41.2	12.23	21 42.1
25	15 54 11.40	2.135	16 28 15.8	9.93	21 39.1
26	15 55 6.87	+ 2.486	− 16 24 44.8	+ 7.70	21 36.2
27	15 56 10.66	2.828	16 22 6.2	5.56	21 33.5
28	15 57 22.56	3.162	16 20 18.0	3.50	21 30.9
29	15 58 42.36	3.486	16 19 18.0	+ 1.54	21 28.4
30	16 0 9.81	3.800	16 19 3.9	− 0.32	21 26.0
31	16 1 44.70	+ 4.105	− 16 19 33.5	− 2.09	21 23.7
32	16 3 26.80	+ 4.401	− 16 20 44.4	− 3.77	21 21.6

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	32d.
	″	″	″	″	″	″	″
Semidiameter	32.18	31.38	29.88	27.99	25.93	23.90	21.99
Hor. Parallax	33.12	32.31	30.82	28.81	26.70	24.60	22.65

Note.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	22 24 8.31	+7.207	−11 2 7.3	+43.85	3 43.1	1	23 51 9.10	+6.876	−1 30 59.8	+47.03	3 7.8
2	22 27 1.11	7.193	10 44 32.1	44.07	3 42.1	2	23 53 54.03	6.870	1 12 11.2	47.01	3 6.6
3	22 29 53.56	7.178	10 26 51.7	44.29	3 41.0	3	23 56 38.81	6.864	0 53 23.2	46.98	3 5.4
4	22 32 45.66	7.164	10 9 6.3	44.49	3 39.9	4	23 59 23.46	6.858	0 34 35.9	46.95	3 4.2
5	22 35 37.41	7.149	9 51 16.2	44.68	3 38.8	5	0 2 7.97	6.852	−0 15 49.5	46.91	3 3.0
6	22 38 28.82	+7.135	− 9 33 21.5	+44.87	3 37.7	6	0 4 52.36	+6.847	+0 2 55.7	+46.86	3 1.8
7	22 41 19.89	7.121	9 15 22.4	45.05	3 36.6	7	0 7 36.64	6.842	0 21 39.7	46.81	3 0.6
8	22 44 10.63	7.107	8 57 19.1	45.22	3 35.5	8	0 10 20.81	6.838	0 40 22.2	46.75	2 59.4
9	22 47 1.05	7.094	8 39 11.7	45.38	3 34.4	9	0 13 4.88	6.834	0 59 3.2	46.68	2 58.2
10	22 49 51.15	7.081	8 21 0.6	45.54	3 33.3	10	0 15 48.86	6.831	1 17 42.5	46.60	2 57.0
11	22 52 40.93	+7.068	− 8 2 45.8	+45.69	3 32.2	11	0 18 32.76	+6.828	+1 36 19.8	+46.51	2 55.8
12	22 55 30.41	7.056	7 44 27.6	45.84	3 31.1	12	0 21 16.58	6.825	1 54 55.1	46.42	2 54.6
13	22 58 19.60	7.044	7 26 6.1	45.98	3 30.0	13	0 24 0.35	6.823	2 13 28.2	46.32	2 53.4
14	23 1 8.50	7.032	7 7 41.6	46.11	3 28.9	14	0 26 44.07	6.821	2 31 59.0	46.22	2 52.2
15	23 3 57.13	7.020	6 49 14.3	46.22	3 27.7	15	0 29 27.75	6.819	2 50 27.3	46.12	2 51.0
16	23 6 45.48	+7.009	− 6 30 44.2	+46.32	3 26.5	16	0 32 11.39	+6.818	+3 8 52.9	+46.01	2 49.8
17	23 9 33.57	6.998	6 12 11.5	46.41	3 25.4	17	0 34 55.02	6.818	3 27 15.7	45.89	2 48.5
18	23 12 21.41	6.988	5 53 36.5	46.50	3 24.3	18	0 37 38.63	6.817	3 45 35.6	45.76	2 47.3
19	23 15 9.01	6.978	5 34 59.3	46.59	3 23.2	19	0 40 22.23	6.817	4 3 52.4	45.63	2 46.1
20	23 17 56.38	6.969	5 16 20.2	46.67	3 22.0	20	0 43 5.82	6.817	4 22 5.9	45.49	2 44.9
21	23 20 43.52	+6.960	− 4 57 39.2	+46.75	3 20.8	21	0 45 49.43	+6.817	+4 40 16.0	+45.34	2 43.7
22	23 23 30.45	6.951	4 38 56.5	46.82	3 19.7	22	0 48 33.05	6.818	4 58 22.6	45.20	2 42.5
23	23 26 17.16	6.942	4 20 12.4	46.88	3 18.5	23	0 51 16.69	6.819	5 16 25.4	45.04	2 41.3
24	23 29 3.67	6.934	4 1 27.0	46.93	3 17.3	24	0 54 0.36	6.820	5 34 24.4	44.88	2 40.1
25	23 31 49.98	6.926	3 42 40.4	46.97	3 16.1	25	0 56 44.06	6.822	5 52 19.3	44.70	2 38.9
26	23 34 36.10	+6.918	− 3 23 52.8	+46.99	3 14.9	26	0 59 27.79	+6.823	+6 10 10.1	+44.52	2 37.6
27	23 37 22.04	6.910	3 5 4.7	47.01	3 13.8	27	1 2 11.56	6.825	6 27 56.5	44.33	2 36.4
28	23 40 7.79	6.903	2 46 16.0	47.03	3 12.6	28	1 4 55.38	6.827	6 45 38.4	44.14	2 35.2
29	23 42 53.37	6.896	2 27 27.0	47.04	3 11.4	29	1 7 39.25	6.829	7 3 15.6	43.95	2 34.0
30	23 45 38.78	6.889	2 8 37.8	47.04	3 10.2	30	1 10 23.17	6.831	7 20 48.0	43.75	2 32.8
31	23 48 24.02	+6.882	− 1 49 48.7	+47.04	3 9.0	31	1 13 7.16	+6.834	+7 38 15.5	+43.54	2 31.6
32	23 51 9.10	+6.876	− 1 30 59.8	+47.03	3 7.8	32	1 15 51.21	+6.837	+7 55 37.8	+43.32	2 30.4

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter.	2.90	2.85	2.80	2.75	2.71	2.66	2.62
Hor. Parallax.	5.06	4.97	4.88	4.80	4.72	4.64	4.57

Day of the Month.	5th.	10th.	15th.	20th.	25th.
	″	″	″	″	″
Semidiameter . . .	2.58	2.54	2.50	2.46	2.42
Horizontal Parallax .	4.50	4.43	4.36	4.29	4.23

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	1 7 39.25	+6.829	+ 7 3 15.6	+43.95	2 34.0	1	2 33 15.46	+7.011	+15 18 21.7	+35.05	1 57.4
2	1 10 23.17	6.831	7 20 48.0	43.75	2 32.8	2	2 36 3.81	7.019	15 32 18.4	34.68	1 56.2
3	1 13 7.16	6.834	7 38 15.5	43.54	2 31.6	3	2 38 52.35	7.027	15 46 6.2	34.31	1 55.1
4	1 15 51.21	6.837	7 55 37.8	43.32	2 30.4	4	2 41 41.08	7.035	15 59 44.9	33.93	1 54.0
5	1 18 35.33	6.840	8 12 54.9	43.10	2 29.2	5	2 44 30.01	7.043	16 13 14.4	33.54	1 52.9
6	1 21 19.52	+6.843	+ 8 30 6.5	+42.87	2 28.0	6	2 47 19.13	+7.051	+16 26 34.6	+33.15	1 51.8
7	1 24 3.80	6.847	8 47 12.6	42.64	2 26.8	7	2 50 8.45	7.059	16 39 45.4	32.75	1 50.6
8	1 26 48.17	6.851	9 4 13.0	42.40	2 25.6	8	2 52 57.97	7.067	16 52 46.7	32.35	1 49.5
9	1 29 32.63	6.855	9 21 7.6	42.15	2 24.4	9	2 55 47.69	7.075	17 5 38.3	31.95	1 48.4
10	1 32 17.19	6.859	9 37 56.2	41.90	2 23.2	10	2 58 37.62	7.084	17 18 20.2	31.54	1 47.3
11	1 35 1.86	+6.863	+ 9 54 38.7	+41.64	2 22.0	11	3 1 27.75	+7.093	+17 30 52.3	+31.13	1 46.2
12	1 37 46.64	6.868	10 11 15.0	41.38	2 20.8	12	3 4 18.09	7.102	17 43 14.5	30.72	1 45.1
13	1 40 31.54	6.873	10 27 44.9	41.11	2 19.6	13	3 7 8.65	7.111	17 55 26.7	30.30	1 44.0
14	1 43 16.58	6.879	10 44 8.4	40.84	2 18.4	14	3 9 59.42	7.120	18 7 28.8	29.88	1 42.9
15	1 46 1.76	6.885	11 0 25.3	40.56	2 17.2	15	3 12 50.40	7.129	18 19 20.8	29.45	1 41.8
16	1 48 47.08	+6.891	+11 16 35.4	+40.28	2 16.0	16	3 15 41.60	+7.138	+18 31 2.5	+29.02	1 40.7
17	1 51 32.56	6.898	11 32 38.7	40.00	2 14.9	17	3 18 33.01	7.147	18 42 33.8	28.59	1 39.6
18	1 54 18.19	6.905	11 48 35.0	39.71	2 13.7	18	3 21 24.63	7.156	18 53 54.8	28.15	1 38.5
19	1 57 3.99	6.912	12 4 24.2	39.41	2 12.5	19	3 24 16.47	7.165	19 5 5.2	27.71	1 37.4
20	1 59 49.95	6.919	12 20 6.2	39.10	2 11.3	20	3 27 8.52	7.173	19 16 4.9	27.27	1 36.3
21	2 2 36.08	+6.926	+12 35 40.9	+38.79	2 10.1	21	3 30 0.77	+7.181	+19 26 53.9	+26.82	1 35.3
22	2 5 22.38	6.933	12 51 8.1	38.47	2 9.0	22	3 32 53.23	7.190	19 37 32.1	26.37	1 34.2
23	2 8 8.86	6.940	13 6 27.7	38.15	2 7.8	23	3 35 45.88	7.198	19 47 59.5	25.91	1 33.2
24	2 10 55.52	6.947	13 21 39.6	37.83	2 6.7	24	3 38 38.73	7.206	19 58 15.9	25.45	1 32.1
25	2 13 42.36	6.955	13 36 43.7	37.50	2 5.5	25	3 41 31.77	7.214	20 8 21.2	24.99	1 31.0
26	2 16 29.38	+6.963	+13 51 39.8	+37.17	2 4.4	26	3 44 25.00	+7.222	+20 18 15.4	+24.52	1 30.0
27	2 19 16.59	6.971	14 6 27.8	36.83	2 3.2	27	3 47 18.42	7.229	20 27 58.4	24.05	1 28.9
28	2 22 3.98	6.979	14 21 7.5	36.48	2 2.0	28	3 50 12.01	7.236	20 37 30.1	23.58	1 27.9
29	2 24 51.56	6.987	14 35 38.9	36.13	2 0.9	29	3 53 5.77	7.243	20 46 50.4	23.11	1 26.8
30	2 27 39.34	6.995	14 50 1.8	35.77	1 59.7	30	3 55 59.70	7.250	20 55 59.3	22.63	1 25.8
31	2 30 27.30	+7.003	+15 4 16.1	+35.41	1 58.6	31	3 58 53.80	+7.257	+21 4 56.6	+22.15	1 24.8
32	2 33 15.46	+7.011	+15 18 21.7	+35.05	1 57.4	32	4 1 48.05	+7.264	+21 13 42.4	+21.67	1 23.7

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.
	″	″	″	″	″	″		″	″	″	″	″	″
Semidiameter . .	2.39	2.36	2.33	2.30	2.27	2.24	Semidiameter . .	2.22	2.19	2.17	2.14	2.12	2.10
Hor. Parallax . .	4.17	4.11	4.06	4.00	3.95	3.90	Hor. Parallax . .	3.86	3.81	3.77	3.73	3.69	3.65

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

MAY.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m
1	3 58 53.80	+7.257	+21 4 56.6	+22.15	1 24.8
2	4 1 48.05	7.264	21 13 42.4	21.67	1 23.7
3	4 4 42.46	7.270	21 22 16.4	21.18	1 22.7
4	4 7 37.01	7.276	21 30 38.7	20.69	1 21.6
5	4 10 31.71	7.282	21 38 49.1	20.19	1 20.6
6	4 13 26.54	+7.288	+21 46 47.7	+19.69	1 19.6
7	4 16 21.51	7.294	21 54 34.4	19.19	1 18.6
8	4 19 16.61	7.299	22 2 9.1	18.69	1 17.6
9	4 22 11.83	7.304	22 9 31.8	18.19	1 16.5
10	4 25 7.17	7.309	22 16 42.4	17.69	1 15.5
11	4 28 2.64	+7.314	+22 23 41.0	+17.19	1 14.5
12	4 30 58.22	7.319	22 30 27.4	16.68	1 13.5
13	4 33 53.92	7.323	22 37 1.6	16.17	1 12.5
14	4 36 49.73	7.327	22 43 23.6	15.66	1 11.5
15	4 39 45.64	7.331	22 49 33.3	15.15	1 10.5
16	4 42 41.64	+7.335	+22 55 30.8	+14.64	1 9.5
17	4 45 37.73	7.338	23 1 16.0	14.13	1 8.5
18	4 48 33.90	7.341	23 6 48.8	13.61	1 7.5
19	4 51 30.15	7.344	23 12 9.2	13.09	1 6.5
20	4 54 26.46	7.347	23 17 17.1	12.57	1 5.5
21	4 57 22.83	+7.350	+23 22 12.6	+12.05	1 4.5
22	5 0 19.25	7.352	23 26 55.6	11.53	1 3.5
23	5 3 15.71	7.353	23 31 26.2	11.01	1 2.5
24	5 6 12.20	7.354	23 35 44.3	10.49	1 1.5
25	5 9 8.71	7.354	23 39 49.8	9.97	1 0.5
26	5 12 5.23	+7.354	+23 43 42.8	+ 9.45	0 59.5
27	5 15 1.76	7.354	23 47 23.2	8.93	0 58.5
28	5 17 58.28	7.353	23 50 51.0	8.41	0 57.5
29	5 20 54.79	7.352	23 54 6.3	7.88	0 56.5
30	5 23 51.26	7.351	23 57 9.0	7.35	0 55.5
31	5 26 47.70	+7.350	+23 59 59.1	+ 6.82	0 54.5
32	5 29 44.10	+7.348	+24 2 36.7	+ 6.29	0 53.5

JUNE.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m
1	5 29 44.10	+7.348	+24 2 36.7	+6.29	0 53.5
2	5 32 40.45	7.346	24 5 1.6	5.77	0 52.5
3	5 35 36.73	7.343	24 7 13.9	5.25	0 51.5
4	5 38 32.95	7.340	24 9 13.6	4.73	0 50.5
5	5 41 29.09	7.337	24 11 0.8	4.21	0 49.5
6	5 44 25.15	+7.333	+24 12 35.5	+3.68	0 48.5
7	5 47 21.12	7.329	24 13 57.6	3.16	0 47.5
8	5 50 16.99	7.325	24 15 7.2	2.64	0 46.5
9	5 53 12.76	7.321	24 16 4.3	2.12	0 45.4
10	5 56 8.43	7.317	24 16 49.0	1.60	0 44.4
11	5 59 3.99	+7.312	+24 17 21.2	+1.08	0 43.4
12	6 1 59.42	7.307	24 17 41.1	0.56	0 42.4
13	6 4 54.73	7.302	24 17 48.6	+0.05	0 41.3
14	6 7 49.90	7.296	24 17 43.7	−0.46	0 40.3
15	6 10 44.93	7.290	24 17 26.5	0.97	0 39.3
16	6 13 39.80	+7.283	+24 16 57.1	−1.48	0 38.3
17	6 16 34.51	7.276	24 16 15.5	1.99	0 37.2
18	6 19 29.06	7.269	24 15 21.6	2.49	0 36.2
19	6 22 23.42	7.261	24 14 15.6	2.99	0 35.1
20	6 25 17.60	7.253	24 12 57.6	3.50	0 34.1
21	6 28 11.58	+7.245	+24 11 27.5	−4.00	0 33.1
22	6 31 5.36	7.237	24 9 45.3	4.50	0 32.0
23	6 33 58.93	7.228	24 7 51.2	5.00	0 31.0
24	6 36 52.27	7.218	24 5 45.3	5.50	0 29.9
25	6 39 45.38	7.208	24 3 27.5	5.99	0 28.9
26	6 42 38.24	+7.198	+24 0 57.9	−6.48	0 27.8
27	6 45 30.85	7.187	23 58 16.5	6.97	0 26.7
28	6 48 23.21	7.176	23 55 23.5	7.45	0 25.7
29	6 51 15.30	7.165	23 52 19.0	7.93	0 24.6
30	6 54 7.12	7.153	23 49 2.9	8.41	0 23.5
31	6 56 58.66	+7.141	+23 45 35.4	−8.88	0 22.5
32	6 59 49.92	+7.129	+23 41 56.4	−9.35	0 21.4

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter.	2.08	2.06	2.04	2.02	2.01	1.99	1.98
Hor. Parallax.	3.62	3.59	3.56	3.53	3.50	3.48	3.46

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
	″	″	″	″	″	″
Semidiameter . .	1.97	1.96	1.95	1.94	1.94	1.93
Hor. Parallax . .	3.44	3.42	3.40	3.38	3.37	3.36

Note.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

JULY.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m
1	6 56 58.66	+ 7.141	+23 45 35.4	− 8.88	0 22.5
2	6 59 49.92	7.129	23 41 56.4	9.35	0 21.4
3	7 2 40.89	7.117	23 38 6.1	9.82	0 20.3
4	7 5 31.56	7.105	23 34 4.6	10.29	0 19.2
5	7 8 21.93	7.092	23 29 51.9	10.76	0 18.1
6	7 11 12.00	+ 7.080	+23 25 28.0	− 11.22	0 17.0
7	7 14 1.77	7.067	23 20 53.1	11.68	0 15.9
8	7 16 51.23	7.054	23 16 7.2	12.14	0 14.8
9	7 19 40.37	7.041	23 11 10.5	12.59	0 13.7
10	7 22 29.20	7.028	23 6 2.9	13.04	0 12.5
11	7 25 17.71	+ 7.015	+23 0 44.6	− 13.48	0 11.4
12	7 28 5.90	7.001	22 55 15.7	13.92	0 10.2
13	7 30 53.77	6.987	22 49 36.3	14.36	0 9.1
14	7 33 41.30	6.973	22 43 46.4	14.79	0 8.0
15	7 36 28.50	6.959	22 37 46.1	15.22	0 6.8
16	7 39 15.35	+ 6.945	+22 31 35.6	− 15.64	0 5.7
17	7 42 1.86	6.931	22 25 14.9	16.06	0 4.5
18	7 44 48.02	6.916	22 18 44.1	16.48	0 3.3
19	7 47 33.83	6.901	22 12 3.2	16.90	0 2.1
20	7 50 19.29	6.886	22 5 12.4	17.32	0 0.9 23 59.7
21	7 53 4.38	+ 6.871	+21 58 11.8	− 17.73	23 58.5
22	7 55 49.11	6.856	21 51 1.5	18.14	23 57.3
23	7 58 33.47	6.841	21 43 41.5	18.54	23 56.1
24	8 1 17.45	6.825	21 36 11.9	18.93	23 54.9
25	8 4 1.05	6.809	21 28 32.9	19.32	23 53.7
26	8 6 44.27	+ 6.793	+21 20 44.5	− 19.70	23 52.5
27	8 9 27.10	6.777	21 12 47.0	20.08	23 51.2
28	8 12 9.55	6.761	21 4 40.3	20.46	23 50.0
29	8 14 51.61	6.745	20 56 24.5	20.84	23 48.7
30	8 17 33.28	6.728	20 47 59.8	21.21	23 47.5
31	8 20 14.56	+ 6.711	+20 39 26.3	− 21.58	23 46.2
32	8 22 55.45	+ 6.695	+20 30 44.1	− 21.94	23 45.0

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
	″	″	″	″	″	″
Semidiameter . . .	1.93	1.92	1.92	1.92	1.91	1.91
Hor. Parallax . . .	3.35	3.34	3.34	3.33	3.33	3.33

AUGUST.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m
1	8 22 55.45	+6.695	+20 30 44.1	− 21.94	23 45.0
2	8 25 35.95	6.679	20 21 53.2	22.30	23 43.7
3	8 28 16.06	6.663	20 12 53.7	22.65	23 42.4
4	8 30 55.79	6.647	20 3 45.8	23.00	23 41.1
5	8 33 35.13	6.631	19 54 29.5	23.35	23 39.8
6	8 36 14.09	+6.615	+19 45 4.9	− 23.69	23 38.5
7	8 38 52.67	6.599	19 35 32.1	24.03	23 37.2
8	8 41 30.87	6.583	19 25 51.3	24.36	23 35.9
9	8 44 8.69	6.568	19 16 2.6	24.69	23 34.6
10	8 46 46.14	6.552	19 6 6.1	25.01	23 33.2
11	8 49 23.21	+6.536	+18 56 1.8	− 25.33	23 31.9
12	8 51 59.91	6.520	18 45 49.8	25.65	23 30.6
13	8 54 36.23	6.505	18 35 30.3	25.97	23 29.2
14	8 57 12.18	6.490	18 25 3.3	26.28	23 27.9
15	8 59 47.76	6.474	18 14 28.9	26.58	23 26.5
16	9 2 22.97	+6.458	+18 3 47.4	− 26.88	23 25.2
17	9 4 57.81	6.442	17 52 58.7	27.17	23 23.8
18	9 7 32.28	6.427	17 42 3.0	27.46	23 22.4
19	9 10 6.37	6.412	17 31 0.4	27.75	23 21.1
20	9 12 40.09	6.396	17 19 51.0	28.03	23 19.7
21	9 15 13.45	+6.381	+17 0 34.9	− 28.31	23 18.3
22	9 17 46.44	6.366	16 57 12.2	28.58	23 16.9
23	9 20 19.06	6.351	16 45 43.0	28.85	23 15.5
24	9 22 51.31	6.336	16 34 7.4	29.11	23 14.1
25	9 25 23.20	6.321	16 22 25.6	29.37	23 12.7
26	9 27 54.73	+6.306	+16 10 37.6	− 29.62	23 11.3
27	9 30 25.90	6.291	15 58 43.6	29.87	23 9.9
28	9 32 56.71	6.276	15 46 43.6	30.12	23 8.4
29	9 35 27.17	6.262	15 34 37.8	30.36	23 7.0
30	9 37 57.28	6.248	15 22 26.2	30.60	23 5.5
31	9 40 27.05	+6.234	+15 10 9.0	− 30.83	23 4.1
32	9 42 56.49	+6.220	+14 57 46.3	− 31.06	23 2.6

Day of the Month.	4th.	9th.	14th.	19th.	24th.	29th.
	″	″	″	″	″	″
Semidiameter . . .	1.91	1.91	1.92	1.92	1.92	1.93
Hor. Parallax . . .	3.33	3.33	3.34	3.34	3.35	3.37

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	9 42 56.49	+6.220	+14 57 46.3	−31.06	23 2.6	1	10 55 24.75	+5.885	+8 11 29.7	−36.02	22 16.7
2	9 45 25.59	6.206	14 45 18.1	31.29	23 1.1	2	10 57 45.89	5.877	7 57 3.9	36.12	22 15.1
3	9 47 54.36	6.192	14 32 44.5	31.51	22 59.7	3	11 0 6.84	5.869	7 42 35.7	36.22	22 13.5
4	9 50 22.81	6.179	14 20 5.6	31.73	22 58.2	4	11 2 27.61	5.862	7 28 5.2	36.32	22 11.9
5	9 52 50.95	6.166	14 7 21.6	31.94	22 56.7	5	11 4 48.20	5.855	7 13 32.4	36.41	22 10.3
6	9 55 18.77	+6.153	+13 54 32.4	−32.15	22 55.2	6	11 7 8.62	+5.848	+6 58 57.5	−36.50	22 8.7
7	9 57 46.29	6.140	13 41 38.3	32.36	22 53.7	7	11 9 28.88	5.841	6 44 20.5	36.58	22 7.1
8	10 0 13.50	6.128	13 28 39.3	32.56	22 52.2	8	11 11 48.98	5.834	6 29 41.6	36.66	22 5.5
9	10 2 40.42	6.116	13 15 35.5	32.76	22 50.7	9	11 14 8.92	5.828	6 15 0.8	36.74	22 3.9
10	10 5 7.05	6.104	13 2 27.1	32.95	22 49.2	10	11 16 28.72	5.822	6 0 18.2	36.81	22 2.3
11	10 7 33.39	+6.092	+12 49 14.1	−33.14	22 47.7	11	11 18 48.37	+5.816	+5 45 33.9	−36.88	22 0.7
12	10 9 59.44	6.080	12 35 56.6	33.32	22 46.2	12	11 21 7.88	5.810	5 30 48.0	36.95	21 59.0
13	10 12 25.21	6.068	12 22 34.7	33.50	22 44.7	13	11 23 27.26	5.805	5 16 0.5	37.01	21 57.4
14	10 14 50.70	6.056	12 9 8.5	33.68	22 43.2	14	11 25 46.51	5.799	5 1 11.7	37.06	21 55.8
15	10 17 15.92	6.044	11 55 38.2	33.85	22 41.7	15	11 28 5.63	5.794	4 46 21.6	37.11	21 54.2
16	10 19 40.86	+6.033	+11 42 3.8	−34.02	22 40.2	16	11 30 24.63	+5.789	+4 31 30.3	−37.16	21 52.6
17	10 22 5.53	6.022	11 28 25.4	34.18	22 38.6	17	11 32 43.50	5.784	4 16 37.8	37.20	21 50.9
18	10 24 29.94	6.011	11 14 43.2	34.34	22 37.1	18	11 35 2.26	5.779	4 1 44.4	37.24	21 49.3
19	10 26 54.08	6.000	11 0 57.2	34.49	22 35.5	19	11 37 20.90	5.774	3 46 50.1	37.28	21 47.7
20	10 29 17.96	5.989	10 47 7.6	34.64	22 34.0	20	11 39 39.43	5.769	3 31 55.0	37.31	21 46.1
21	10 31 41.59	+5.979	+10 33 14.4	−34.78	22 32.4	21	11 41 57.86	+5.765	+3 16 59.2	−37.34	21 44.5
22	10 34 4.96	5.969	10 19 17.8	34.92	22 30.9	22	11 44 16.18	5.761	3 2 2.8	37.36	21 42.8
23	10 36 28.09	5.959	10 5 17.9	35.06	22 29.4	23	11 46 34.41	5.757	2 47 5.9	37.38	21 41.2
24	10 38 50.97	5.949	9 51 14.7	35.19	22 27.8	24	11 48 52.54	5.754	2 32 8.5	37.40	21 39.6
25	10 41 13.61	5.939	9 37 8.4	35.32	22 26.2	25	11 51 10.59	5.751	2 17 10.8	37.41	21 37.9
26	10 43 36.02	+5.929	+ 9 22 59.0	−35.45	22 24.6	26	11 53 28.56	+5.748	+2 2 12.9	−37.42	21 36.3
27	10 45 58.20	5.919	9 8 46.7	35.57	22 23.0	27	11 55 46.45	5.745	1 47 14.8	37.42	21 34.6
28	10 48 20.15	5.910	8 54 31.5	35.69	22 21.5	28	11 58 4.28	5.742	1 32 16.7	37.42	21 33.0
29	10 50 41.89	5.901	8 40 13.5	35.80	22 19.9	29	12 0 22.05	5.740	1 17 18.6	37.41	21 31.4
30	10 53 3.42	5.893	8 25 52.9	35.91	22 18.3	30	12 2 39.77	5.738	1 2 20.6	37.41	21 29.7
31	10 55 24.75	+5.885	+ 8 11 29.7	−36.02	22 16.7	31	12 4 57.44	+5.736	+0 47 22.7	−37.40	21 28.1
32	10 57 45.89	+5.877	+ 7 57 3.9	−36.12	22 15.1	32	12 7 15.07	+5.734	+0 32 25.1	−37.39	21 26.4

Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.	Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.
	″	″	″	″	″	″		″	″	″	″	″	″
Semidiameter . . .	1.94	1.95	1.96	1.97	1.98	2.00	Semidiameter .	2.02	2.04	2.06	2.08	2.10	2.13
Hor. Parallax . . .	3.38	3.40	3.42	3.45	3.47	3.49	Hor. Parallax .	3.51	3.54	3.58	3.62	3.66	3.70

NOTE. - The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	12 7 15.07	+ 5.734	+0 32 25.1	−37.39	21 26.4
2	12 9 32.66	5.732	0 17 27.8	37.38	21 24.8
3	12 11 50.23	5.731	+0 2 31.0	37.36	21 23.1
4	12 14 7.77	5.730	−0 12 25.2	37.34	21 21.5
5	12 16 25.30	5.730	0 27 21.0	37.31	21 19.8
6	12 18 42.81	+ 5.729	−0 42 16.1	−37.28	21 18.1
7	12 21 0.32	5.729	0 57 10.4	37.24	21 16.4
8	12 23 17.82	5.729	1 12 3.8	37.20	21 14.8
9	12 25 35.32	5.729	1 26 56.3	37.16	21 13.1
10	12 27 52.83	5.730	1 41 47.7	37.12	21 11.5
11	12 30 10.34	+ 5.730	−1 56 38.0	−37.07	21 9.8
12	12 32 27.87	5.730	2 11 27.1	37.02	21 8.1
13	12 34 45.41	5.731	2 26 14.8	36.96	21 6.5
14	12 37 2.97	5.731	2 41 1.1	36.90	21 4.8
15	12 39 20.54	5.732	2 55 45.8	36.83	21 3.2
16	12 41 38.13	+ 5.733	−3 10 28.9	−36.76	21 1.6
17	12 43 55.74	5.734	3 25 10.3	36.69	20 59.9
18	12 46 13.38	5.735	3 39 49.8	36.61	20 58.3
19	12 48 31.04	5.736	3 54 27.4	36.53	20 56.6
20	12 50 48.73	5.737	4 9 3.0	36.44	20 55.0
21	12 53 6.46	+ 5.739	−4 23 36.4	−36.35	20 53.4
22	12 55 24.23	5.741	4 38 7.6	36.25	20 51.7
23	12 57 42.04	5.743	4 52 36.5	36.15	20 50.1
24	12 59 59.90	5.745	5 7 3.0	36.05	20 48.4
25	13 2 17.82	5.747	5 21 27.1	35.95	20 46.8
26	13 4 35.80	+ 5.749	−5 35 48.7	−35.84	20 45.2
27	13 6 53.85	5.752	5 50 7.7	35.73	20 43.5
28	13 9 11.97	5.755	6 4 23.9	35.62	20 41.9
29	13 11 30.16	5.758	6 18 37.4	35.50	20 40.2
30	13 13 48.43	5.762	6 32 48.0	35.38	20 38.6
31	13 16 6.79	+ 5.766	−6 46 55.7	−35.26	20 37.0
32	13 18 25.23	+ 5.770	−7 1 0.4	−35.13	20 35.3

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.
	″	″	″	″	″	″
Semidiameter .	2.16	2.19	2.22	2.25	2.29	2.33
Hor. Parallax .	3.75	3.81	3.86	3.92	3.98	4.05

DECEMBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	13 16 6.79	+ 5.766	− 6 46 55.7	−35.26	20 37.0
2	13 18 25.23	5.770	7 1 0.4	35.13	20 35.3
3	13 20 43.77	5.774	7 15 2.0	35.00	20 33.7
4	13 23 2.40	5.778	7 29 0.4	34.87	20 32.0
5	13 25 21.13	5.782	7 42 55.5	34.73	20 30.4
6	13 27 39.96	+ 5.786	− 7 56 47.2	−34.59	20 28.8
7	13 29 58.90	5.791	8 10 35.6	34.44	20 27.1
8	13 32 17.95	5.795	8 24 20.5	34.29	20 25.5
9	13 34 37.10	5.800	8 38 1.7	34.14	20 23.9
10	13 36 56.37	5.804	8 51 39.2	33.98	20 22.3
11	13 39 15.74	+ 5.809	− 9 5 12.9	−33.82	20 20.7
12	13 41 35.22	5.814	9 18 42.8	33.66	20 19.1
13	13 43 54.81	5.818	9 32 8.6	33.49	20 17.5
14	13 46 14.51	5.823	9 45 30.3	33.32	20 15.9
15	13 48 34.32	5.827	9 58 47.8	33.14	20 14.3
16	13 50 54.23	+ 5.832	−10 12 1.0	−32.96	20 12.7
17	13 53 14.25	5.836	10 25 9.9	32.78	20 11.1
18	13 55 34.38	5.841	10 38 14.3	32.59	20 9.5
19	13 57 54.62	5.845	10 51 14.1	32.40	20 7.9
20	14 0 14.97	5.850	11 4 9.3	32.20	20 6.3
21	14 2 35.43	+ 5.855	−11 16 59.8	−32.00	20 4.7
22	14 4 56.01	5.860	11 29 45.5	31.80	20 3.1
23	14 7 16.70	5.865	11 42 26.2	31.60	20 1.5
24	14 9 37.51	5.870	11 55 2.0	31.39	19 59.9
25	14 11 58.45	5.875	12 7 32.8	31.18	19 58.3
26	14 14 19.51	+ 5.880	−12 19 58.5	− 30.97	19 56.7
27	14 16 40.70	5.886	12 32 19.1	30.75	19 55.1
28	14 19 2.02	5.891	12 44 34.4	30.53	19 53.5
29	14 21 23.47	5.896	12 56 44.4	30.31	19 51.9
30	14 23 45.05	5.902	13 8 49.1	30.08	19 50.3
31	14 26 6.76	+ 5.907	−13 20 48.3	−29.85	19 48.8
32	14 28 28.60	+ 5.913	−13 32 42.0	−29.62	19 47.2

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	32d.
	″	″	″	″	″	″	″
Semidiameter	2.37	2.42	2.47	2.52	2.58	2.64	2.69
Hor. Parallax	4.13	4.21	4.29	4.38	4.48	4.58	4.69

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.	Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	3 40 17.32	−0.703	+18 40 30.5	−1.69	8 57.8	1	3 38 10.12	+0.370	+18 41 42.5	+1.91	6 53.9
2	3 40 0.84	0.671	18 39 51.3	1.58	8 53.6	2	3 38 19.42	0.404	18 42 29.6	2.02	6 50.1
3	3 39 45.14	0.638	18 39 14.6	1.47	8 49.4	3	3 38 29.53	0.438	18 43 19.3	2.13	6 46.4
4	3 39 30.24	0.605	18 38 40.6	1.36	8 45.2	4	3 38 40.46	0.472	18 44 11.7	2.23	6 42.7
5	3 39 16.14	0.571	18 38 9.3	1.25	8 41.0	5	3 38 52.19	0.505	18 45 6.7	2.34	6 38.9
6	3 39 2.84	−0.537	+18 37 40.6	−1.13	8 36.9	6	3 39 4.71	+0.538	+18 46 4.2	+2.45	6 35.2
7	3 38 50.35	0.503	18 37 14.6	1.02	8 32.8	7	3 39 18.02	0.571	18 47 4.2	2.55	6 31.5
8	3 38 38.68	0.469	18 36 51.4	0.91	8 28.7	8	3 39 32.12	0.604	18 48 6.7	2.65	6 27.8
9	3 38 27.83	0.435	18 36 31.0	0.80	8 24.6	9	3 39 47.00	0.636	18 49 11.6	2.75	6 24.1
10	3 38 17.81	0.401	18 36 13.4	0.68	8 20.5	10	3 40 2.65	0.668	18 50 18.9	2.85	6 20.4
11	3 38 8.61	−0.366	+18 35 58.5	−0.56	8 16.4	11	3 40 19.06	+0.700	+18 51 28.6	+2.95	6 16.8
12	3 38 0.24	0.331	18 35 46.5	0.45	8 12.3	12	3 40 36.23	0.732	18 52 40.6	3.05	6 13.2
13	3 37 52.71	0.296	18 35 37.3	0.33	8 8.3	13	3 40 54.16	0.763	18 53 54.9	3.15	6 9.6
14	3 37 46.02	0.261	18 35 30.9	0.21	8 4.2	14	3 41 12.84	0.794	18 55 11.4	3.24	6 6.0
15	3 37 40.17	0.226	18 35 27.4	−0.09	8 0.2	15	3 41 32.26	0.825	18 56 30.2	3.33	6 2.3
16	3 37 35.16	−0.191	+18 35 26.7	+0.03	7 56.2	16	3 41 52.42	+0.855	+18 57 51.3	+3.42	5 58.7
17	3 37 30.99	0.156	18 35 28.9	0.15	7 52.2	17	3 42 13.32	0.885	18 59 14.4	3.51	5 55.1
18	3 37 27.67	0.121	18 35 33.9	0.27	7 48.2	18	3 42 34.94	0.915	19 0 39.6	3.60	5 51.5
19	3 37 25.19	0.085	18 35 41.8	0.39	7 44.2	19	3 42 57.28	0.945	19 2 6.9	3.69	5 48.0
20	3 37 23.57	0.050	18 35 52.5	0.51	7 40.2	20	3 43 20.33	0.975	19 3 36.3	3.77	5 44.5
21	3 37 22.80	−0.014	+18 36 6.1	+0.63	7 36.3	21	3 43 44.10	+1.004	+19 5 7.7	+3.85	5 40.9
22	3 37 22.87	+0.021	18 36 22.6	0.75	7 32.4	22	3 44 8.57	1.033	19 6 41.0	3.93	5 37.4
23	3 37 23.79	0.056	18 36 41.9	0.86	7 28.5	23	3 44 33.73	1.062	19 8 16.2	4.01	5 33.9
24	3 37 25.57	0.092	18 37 4.1	0.98	7 24.6	24	3 44 59.58	1.091	19 9 53.3	4.08	5 30.4
25	3 37 28.20	0.127	18 37 29.1	1.10	7 20.7	25	3 45 26.12	1.119	19 11 32.2	4.16	5 26.9
26	3 37 31.67	+0.162	+18 37 56.9	+1.22	7 16.8	26	3 45 53.32	+1.147	+19 13 12.8	+4.23	5 23.4
27	3 37 35.99	0.197	18 38 27.6	1.34	7 13.0	27	3 46 21.18	1.175	19 14 55.2	4.30	5 19.9
28	3 37 41.15	0.232	18 39 1.0	1.46	7 9.1	28	3 46 49.69	1.202	19 16 39.3	4.37	5 16.5
29	3 37 47.14	0.267	18 39 37.2	1.58	7 5.3	29	3 47 18.86	1.229	19 18 25.0	4.44	5 13.0
30	3 37 53.97	0.302	18 40 16.2	1.69	7 1.5	30	3 47 48.66	1.255	19 20 12.3	4.51	5 9.6
31	3 38 1.63	+0.336	+18 40 58.0	+1.80	6 57.7	31	3 48 19.09	+1.281	+19 22 1.1	+4.57	5 6.2
32	3 38 10.12	+0.370	+18 41 42.5	+1.91	6 53.9	32	3 48 50.15	+1.307	+19 23 51.5	+4.63	5 2.8

Day of the Month.	3d.	11th.	19th.	27th.	Day of the Month.	4th.	12th.	20th.	28th.
	″	″	″	″		″	″	″	″
Semidiameter	21.88	21.39	20.86	20.33	Semidiameter	19.81	19.28	18.78	18.31
Horizontal Parallax . .	2.05	2.00	1.95	1.90	Horizontal Parallax . .	1.85	1.80	1.75	1.71

Note.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	3 47 18.86	+1.229	+19 18 25.0	+4.44	5 13.0	1	4 7 2.32	+1.905	+20 22 16.1	+5.57	3 30.8
2	3 47 48.66	1.255	19 20 12.3	4.51	5 9.6	2	4 7 48.25	1.922	20 24 29.8	5.58	3 27.6
3	3 48 19.09	1.281	19 22 1.1	4.57	5 6.2	3	4 8 34.58	1.939	20 26 43.6	5.58	3 24.4
4	3 48 50.15	1.307	19 23 51.5	4.63	5 2.8	4	4 9 21.30	1.955	20 28 57.5	5.59	3 21.3
5	3 49 21.82	1.332	19 25 43.3	4.69	4 59.4	5	4 10 8.41	1.971	20 31 11.6	5.59	3 18.2
6	3 49 54.09	+1.357	+19 27 36.4	+4.75	4 56.0	6	4 10 55.91	+1.987	+20 33 25.7	+5.59	3 15.0
7	3 50 26.96	1.382	19 29 30.9	4.80	4 52.6	7	4 11 43.78	2.003	20 35 39.7	5.59	3 11.8
8	3 51 0.44	1.407	19 31 26.7	4.85	4 49.2	8	4 12 32.02	2.018	20 37 53.7	5.58	3 8.7
9	3 51 34.49	1.431	19 33 23.7	4.90	4 45.8	9	4 13 20.62	2.033	20 40 7.6	5.58	3 5.6
10	3 52 9.11	1.455	19 35 21.9	4.95	4 42.4	10	4 14 9.58	2.048	20 42 21.4	5.57	3 2.5
11	3 52 44.30	+1.478	+19 37 21.2	+5.00	4 39.1	11	4 14 58.89	+2.062	+20 44 35.0	+5.57	2 59.4
12	3 53 20.05	1.501	19 39 21.7	5.04	4 35.8	12	4 15 48.54	2.076	20 46 48.4	5.56	2 56.3
13	3 53 56.35	1.524	19 41 23.2	5.08	4 32.5	13	4 16 38.54	2.090	20 49 1.7	5.55	2 53.2
14	3 54 33.19	1.547	19 43 25.7	5.12	4 29.2	14	4 17 28.88	2.104	20 51 14.7	5.54	2 50.1
15	3 55 10.58	1.569	19 45 29.2	5.16	4 25.9	15	4 18 19.54	2.118	20 53 27.4	5.53	2 47.0
16	3 55 48.51	+1.591	+19 47 33.7	+5.20	4 22.6	16	4 19 10.52	+2.131	+20 55 39.7	+5.51	2 43.9
17	3 56 26.97	1.613	19 49 39.0	5.24	4 19.3	17	4 20 1.82	2.144	20 57 51.7	5.49	2 40.8
18	3 57 5.94	1.634	19 51 45.1	5.28	4 16.0	18	4 20 53.44	2.157	21 0 3.4	5.48	2 37.7
19	3 57 45.42	1.655	19 53 52.0	5.31	4 12.7	19	4 21 45.36	2.170	21 2 14.6	5.46	2 34.6
20	3 58 25.42	1.676	19 55 59.8	5.34	4 9.4	20	4 22 37.58	2.182	21 4 25.4	5.44	2 31.6
21	3 59 5.92	+1.697	+19 58 8.3	+5.37	4 6.1	21	4 23 30.09	+2.194	+21 6 35.7	+5.42	2 28.6
22	3 59 46.90	1.718	20 0 17.4	5.40	4 2.8	22	4 24 22.90	2.206	21 8 45.5	5.40	2 25.5
23	4 0 28.37	1.738	20 2 27.1	5.42	3 59.6	23	4 25 15.98	2.218	21 10 54.7	5.38	2 22.5
24	4 1 10.33	1.758	20 4 37.4	5.44	3 56.4	24	4 26 9.33	2.229	21 13 3.4	5.35	2 19.4
25	4 1 52.76	1.777	20 6 48.3	5.46	3 53.2	25	4 27 2.96	2.240	21 15 11.5	5.32	2 16.4
26	4 2 35.65	+1.796	+20 8 59.7	+5.48	3 50.0	26	4 27 56.85	+2.251	+21 17 18.9	+5.30	2 13.3
27	4 3 18.99	1.815	20 11 11.5	5.50	3 46.8	27	4 28 50.99	2.261	21 19 25.7	5.27	2 10.3
28	4 4 2.79	1.834	20 13 23.8	5.52	3 43.6	28	4 29 45.38	2.271	21 21 31.8	5.24	2 7.3
29	4 4 47.03	1.852	20 15 36.5	5.54	3 40.4	29	4 30 40.01	2.281	21 23 37.2	5.21	2 4.3
30	4 5 31.70	1.870	20 17 49.4	5.55	3 37.2	30	4 31 34.88	2.291	21 25 41.8	5.18	2 1.2
31	4 6 16.80	+1.888	+20 20 2.6	+5.56	3 34.0	31	4 32 29.97	+2.300	+21 27 45.6	+5.15	1 58.2
32	4 7 2.32	+1.905	+20 22 16.1	+5.57	3 30.8	32	4 33 25.28	+2.309	+21 29 48.6	+5.11	1 55.2

Day of the Month.	8th.	16th.	24th.
	″	″	″
Semidiameter	17.87	17.47	17.11
Horizontal Parallax	1.67	1.63	1.60

Day of the Month.	1st.	9th.	17th.	25th.
	″	″	″	″
Semidiameter	16.78	16.48	16.23	16.01
Horizontal Parallax . .	1.57	1.54	1.52	1.49

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

MAY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	4 32 29.97	+ 2.300	+21 27 45.6	+ 5.15	1 58.2
2	4 33 25.28	2.309	21 29 48.6	5.11	1 55.2
3	4 34 20.82	2.318	21 31 50.8	5.07	1 52.2
4	4 35 16.56	2.327	21 33 52.1	5.04	1 49.2
5	4 36 12.50	2.336	21 35 52.5	5.00	1 46.2
6	4 37 8.64	+ 2.344	+21 37 52.0	+ 4.96	1 43.2
7	4 38 4.99	2.352	21 39 50.5	4.92	1 40.2
8	4 39 1.52	2.360	21 41 48.1	4.88	1 37.2
9	4 39 58.23	2.367	21 43 44.7	4.84	1 34.2
10	4 40 55.12	2.374	21 45 40.3	4.80	1 31.2
11	4 41 52.18	+ 2.381	+21 47 34.8	+ 4.75	1 28.2
12	4 42 49.42	2.388	21 49 28.3	4.71	1 25.2
13	4 43 46.82	2.395	21 51 20.7	4.67	1 22.2
14	4 44 44.38	2.402	21 53 12.1	4.62	1 19.2
15	4 45 42.11	2.408	21 55 2.4	4.57	1 16.3
16	4 46 39.99	+ 2.414	+21 56 51.5	+ 4.53	1 13.3
17	4 47 38.01	2.420	21 58 39.5	4.48	1 10.3
18	4 48 36.17	2.426	22 0 26.4	4.43	1 7.4
19	4 49 34.46	2.432	22 2 12.1	4.38	1 4.5
20	4 50 32.89	2.437	22 3 56.6	4.33	1 1.5
21	4 51 31.44	+ 2.442	+22 5 39.9	+ 4.28	0 58.5
22	4 52 30.11	2.447	22 7 21.9	4.23	0 55.5
23	4 53 28.89	2.451	22 9 2.7	4.17	0 52.6
24	4 54 27.77	2.455	22 10 42.2	4.12	0 49.6
25	4 55 26.74	2.459	22 12 20.4	4.07	0 46.7
26	4 56 25.80	+ 2.463	+22 13 57.4	+ 4.02	0 43.7
27	4 57 24.96	2.466	22 15 33.1	3.96	0 40.8
28	4 58 24.20	2.469	22 17 7.4	3.91	0 37.8
29	4 59 23.51	2.472	22 18 40.4	3.85	0 34.9
30	5 0 22.90	2.475	22 20 12.0	3.79	0 31.9
31	5 1 22.36	+ 2.478	+22 21 42.3	+ 3.73	0 29.0
32	5 2 21.87	+ 2.481	+22 23 11.2	+ 3.68	0 26.0

Day of the Month.	3d.	11th.	19th.	27th.
	″	″	″	″
Semidiameter	15.82	15.68	15.56	15.48
Horizontal Parallax . .	1.48	1.47	1.45	1.45

JUNE.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage
	h m s	s	° ′ ″	″	h m
1	5 2 21.87	+ 2.481	+22 23 11.2	+ 3.68	0 26.0
2	5 3 21.43	2.483	22 24 38.7	3.62	0 23.1
3	5 4 21.04	2.485	22 26 4.8	3.56	0 20.2
4	5 5 20.70	2.487	22 27 29.5	3.50	0 17.2
5	5 6 20.40	2.489	22 28 52.7	3.44	0 14.3
6	5 7 20.13	+ 2.491	+22 30 14.5	+ 3.38	0 11.3
7	5 8 19.90	2.492	22 31 34.9	3.32	0 8.4
8	5 9 19.70	2.493	22 32 54.0	3.26	0 5.5
9	5 10 19.51	2.493	22 34 11.5	3.20	0 2.6 23 59.6
10	5 11 19.34	2.493	22 35 27.5	3.14	23 56.7
11	5 12 19.18	+ 2.494	+22 36 42.1	+ 3.08	23 53.7
12	5 13 19.03	2.494	22 37 55.3	3.02	23 50.8
13	5 14 18.89	2.494	22 39 7.0	2.96	23 47.8
14	5 15 18.75	2.493	22 40 17.2	2.90	23 44.9
15	5 16 18.60	2.493	22 41 25.9	2.84	23 42.0
16	5 17 18.44	+ 2.493	+22 42 33.2	+ 2.77	23 39.1
17	5 18 18.26	2.492	22 43 39.0	2.71	23 36.1
18	5 19 18.06	2.491	22 44 43.3	2.65	23 33.2
19	5 20 17.83	2.490	22 45 46.1	2.59	23 30.2
20	5 21 17.57	2.488	22 46 47.4	2.52	23 27.3
21	5 22 17.27	+ 2.486	+22 47 47.2	+ 2.46	23 24.3
22	5 23 16.92	2.484	22 48 45.5	2.40	23 21.4
23	5 24 16.52	2.482	22 49 42.3	2.34	23 18.4
24	5 25 16.06	2.480	22 50 37.7	2.27	23 15.5
25	5 26 15.54	2.477	22 51 31.5	2.21	23 12.5
26	5 27 14.94	+ 2.474	+22 52 23.8	+ 2.15	23 9.6
27	5 28 14.26	2.471	22 53 14.6	2.09	23 6.6
28	5 29 13.50	2.467	22 54 4.0	2.02	23 3.7
29	5 30 12.66	2.463	22 54 51.8	1.96	23 0.7
30	5 31 11.72	2.459	22 55 38.1	1.90	22 57.8
31	5 32 10.68	+ 2.455	+22 56 22.9	+ 1.84	22 54.8
32	5 33 9.54	+ 2.450	+22 57 6.3	+ 1.77	22 51.9

Day of the Month.	4th.	12th.	20th.	28th.
	″	″	″	″
Semidiameter	15.43	15.41	15.43	15.47
Horizontal Parallax . .	1.44	1.44	1.44	1.45

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

JULY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	5 32 10.68	+2.455	+22 56 22.9	+1.84	22 54.8
2	5 33 9.54	2.450	22 57 6.3	1.77	22 51.9
3	5 34 8.30	2.446	22 57 48.1	1.71	22 49.0
4	5 35 6.94	2.441	22 58 28.5	1.65	22 46.0
5	5 36 5.46	2.436	22 59 7.4	1.59	22 43.0
6	5 37 3.86	+2.431	+22 59 44.8	+1.53	22 40.0
7	5 38 2.14	2.426	23 0 20.7	1.47	22 37.1
8	5 39 0.29	2.421	23 0 55.2	1.41	22 34.1
9	5 39 58.30	2.415	23 1 28.3	1.35	22 31.1
10	5 40 56.18	2.409	23 2 0.0	1.29	22 28.1
11	5 41 53.92	+2.403	+23 2 30.2	+1.23	22 25.1
12	5 42 51.50	2.396	23 2 59.0	1.17	22 22.2
13	5 43 48.92	2.389	23 3 26.4	1.11	22 19.2
14	5 44 46.17	2.382	23 3 52.3	1.05	22 16.2
15	5 45 43.26	2.375	23 4 16.9	0.99	22 13.2
16	5 46 40.17	+2.368	+23 4 40.1	+0.93	22 10.2
17	5 47 36.90	2.360	23 5 2.0	0.88	22 7.2
18	5 48 33.45	2.352	23 5 22.5	0.83	22 4.2
19	5 49 29.81	2.344	23 5 41.7	0.78	22 1.2
20	5 50 25.96	2.336	23 5 59.5	0.72	21 58.2
21	5 51 21.90	+2.327	+23 6 16.0	+0.67	21 55.2
22	5 52 17.63	2.318	23 6 31.2	0.61	21 52.2
23	5 53 13.14	2.309	23 6 45.1	0.56	21 49.2
24	5 54 8.42	2.299	23 6 57.7	0.50	21 46.2
25	5 55 3.47	2.289	23 7 9.0	0.45	21 43.2
26	5 55 58.28	+2.279	+23 7 19.1	+0.39	21 40.1
27	5 56 52.85	2.269	23 7 27.9	0.34	21 37.1
28	5 57 47.16	2.258	23 7 35.5	0.29	21 34.1
29	5 58 41.21	2.247	23 7 41.9	0.24	21 31.0
30	5 59 35.00	2.236	23 7 47.2	0.19	21 27.9
31	6 0 28.52	+2.225	+23 7 51.2	+0.14	21 24.9
32	6 1 21.76	+2.213	+23 7 54.1	+0.09	21 21.8

Day of the Month.	6th.	14th.	22d.	30th.
	″	″	″	″
Semidiameter	15.55	15.66	15.80	15.99
Horizontal Parallax . .	1.45	1.46	1.48	1.49

AUGUST.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	6 1 21.76	+2.213	+23 7 54.1	+0.09	21 21.8
2	6 2 14.72	2.201	23 7 55.8	+0.04	21 18.8
3	6 3 7.41	2.189	23 7 56.4	0.00	21 15.7
4	6 3 59.81	2.177	23 7 55.9	−0.05	21 12.7
5	6 4 51.91	2.165	23 7 54.4	0.09	21 9.6
6	6 5 43.71	+2.152	+23 7 51.8	−0.13	21 6.6
7	6 6 35.20	2.139	23 7 48.2	0.17	21 3.5
8	6 7 26.38	2.126	23 7 43.6	0.22	21 0.4
9	6 8 17.24	2.113	23 7 38.0	0.26	20 57.3
10	6 9 7.77	2.099	23 7 31.4	0.30	20 54.2
11	6 9 57.97	+2.085	+23 7 23.8	−0.34	20 51.1
12	6 10 47.83	2.071	23 7 15.3	0.38	20 48.0
13	6 11 37.34	2.056	23 7 5.9	0.42	20 44.9
14	6 12 26.49	2.041	23 6 55.6	0.45	20 41.7
15	6 13 15.29	2.026	23 6 44.5	0.48	20 38.6
16	6 14 3.72	+2.010	+23 6 32.6	−0.52	20 35.5
17	6 14 51.76	1.994	23 6 19.9	0.55	20 32.4
18	6 15 39.42	1.978	23 6 6.4	0.58	20 29.2
19	6 16 26.69	1.961	23 5 52.0	0.61	20 26.1
20	6 17 13.56	1.944	23 5 37.0	0.64	20 22.9
21	6 18 0.01	+1.927	+23 5 21.3	−0.67	20 19.7
22	6 18 46.05	1.910	23 5 4.9	0.70	20 16.5
23	6 19 31.68	1.893	23 4 47.8	0.72	20 13.4
24	6 20 16.89	1.875	23 4 30.1	0.75	20 10.2
25	6 21 1.64	1.856	23 4 11.8	0.77	20 7.0
26	6 21 45.94	+1.837	+23 3 52.9	−0.80	20 3.8
27	6 22 29.79	1.818	23 3 33.4	0.82	20 0.6
28	6 23 13.19	1.799	23 3 13.4	0.84	19 57.4
29	6 23 56.12	1.780	23 2 53.0	0.86	19 54.2
30	6 24 38.58	1.760	23 2 32.1	0.88	19 50.9
31	6 25 20.58	+1.740	+23 2 10.7	−0.90	19 47.7
32	6 26 2.10	+1.720	+23 1 49.0	−0.92	19 44.5

Day of the Month.	7th.	15th.	23d.	31st.
	″	″	″	″
Semidiameter	16.19	16.44	16.72	17.03
Horizontal Parallax . .	1.51	1.54	1.56	1.59

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	6 26 2.10	+1.720	+23 1 49.0	−0.92	19 44.5	1	6 42 24.65	+0.961	+22 50 22.1	−0.80	18 2.5
2	6 26 43.12	1.699	23 1 26.9	0.94	19 41.2	2	6 42 47.34	0.931	22 50 3.1	0.78	17 59.0
3	6 27 23.64	1.678	23 1 4.5	0.95	19 37.9	3	6 43 9.32	0.901	22 49 44.7	0.76	17 55.4
4	6 28 3.65	1.657	23 0 41.7	0.96	19 34.6	4	6 43 30.56	0.870	22 49 26.9	0.73	17 51.8
5	6 28 43.16	1.636	23 0 18.6	0.97	19 31.3	5	6 43 51.07	0.839	22 49 9.8	0.70	17 48.2
6	6 29 22.15	+1.614	+22 59 55.3	−0.98	19 28.0	6	6 44 10.84	+0.808	+22 48 53.3	−0.67	17 44.6
7	6 30 0.61	1.592	22 59 31.8	0.98	19 24.7	7	6 44 29.85	0.776	22 48 37.5	0.64	17 41.0
8	6 30 38.55	1.570	22 59 8.1	0.99	19 21.4	8	6 44 48.09	0.744	22 48 22.4	0.61	17 37.3
9	6 31 15.95	1.547	22 58 44.3	0.99	19 18.1	9	6 45 5.56	0.712	22 48 8.0	0.58	17 33.6
10	6 31 52.79	1.523	22 58 20.4	1.00	19 14.8	10	6 45 22.27	0.680	22 47 54.3	0.55	17 30.0
11	6 32 29.07	+1.499	+22 57 56.3	−1.00	19 11.4	11	6 45 38.19	+0.647	+22 47 41.4	−0.52	17 26.3
12	6 33 4.78	1.476	22 57 32.0	1.01	19 8.1	12	6 45 53.31	0.614	22 47 29.4	0.49	17 22.6
13	6 33 39.92	1.452	22 57 7.8	1.01	19 4.8	13	6 46 7.64	0.580	22 47 18.2	0.45	17 18.9
14	6 34 14.47	1.427	22 56 43.6	1.01	19 1.4	14	6 46 21.17	0.546	22 47 7.8	0.41	17 15.2
15	6 34 48.43	1.402	22 56 19.5	1.01	18 58.0	15	6 46 33.87	0.512	22 46 58.3	0.38	17 11.5
16	6 35 21.79	+1.377	+22 55 55.4	−1.01	18 54.6	16	6 46 45.75	+0.478	+22 46 49.7	−0.34	17 7.7
17	6 35 54.54	1.351	22 55 31.4	1.00	18 51.2	17	6 46 56.81	0.444	22 46 42.0	0.30	17 3.9
18	6 36 26.66	1.325	22 55 7.6	1.00	18 47.8	18	6 47 7.04	0.409	22 46 35.2	0.26	17 0.2
19	6 36 58.16	1.299	22 54 43.9	0.99	18 44.4	19	6 47 16.45	0.375	22 46 29.3	0.22	16 56.4
20	6 37 29.03	1.273	22 54 20.3	0.98	18 41.0	20	6 47 25.02	0.340	22 46 24.4	0.18	16 52.6
21	6 37 59.26	+1.246	+22 53 56.9	−0.97	18 37.6	21	6 47 32.76	+0.305	+22 46 20.5	−0.14	16 48.8
22	6 38 28.83	1.219	22 53 33.8	0.96	18 34.1	22	6 47 39.66	0.270	22 46 17.5	0.10	16 45.0
23	6 38 57.75	1.192	22 53 11.0	0.95	18 30.6	23	6 47 45.70	0.235	22 46 15.5	0.06	16 41.2
24	6 39 26.01	1.164	22 52 48.5	0.93	18 27.1	24	6 47 50.89	0.200	22 46 14.5	−0.02	16 37.3
25	6 39 53.61	1.136	22 52 26.3	0.92	18 23.6	25	6 47 55.23	0.164	22 46 14.6	+0.02	16 33.4
26	6 40 20.52	+1.107	+22 52 4.5	−0.90	18 20.1	26	6 47 58.72	+0.128	+22 46 15.7	+0.07	16 29.5
27	6 40 46.75	1.078	22 51 43.1	0.88	18 16.6	27	6 48 1.35	0.092	22 46 17.8	0.11	16 25.6
28	6 41 12.29	1.049	22 51 22.1	0.86	18 13.1	28	6 48 3.12	0.056	22 46 20.9	0.15	16 21.7
29	6 41 37.12	1.020	22 51 1.6	0.84	18 9.6	29	6 48 4.03	+0.020	22 46 25.1	0.19	16 17.8
30	6 42 1.24	0.991	22 50 41.6	0.82	18 6.1	30	6 48 4.07	−0.016	22 46 30.3	0.24	16 13.8
31	6 42 24.65	+0.961	+22 50 22.1	−0.80	18 2.5	31	6 48 3.25	−0.052	+22 46 36.6	+0.28	16 9.9
32	6 42 47.34	+0.931	+22 50 3.1	−0.78	17 59.0	32	6 48 1.57	−0.088	+22 46 43.9	+0.32	16 5.9

Day of the Month.	8th.	16th.	24th.	Day of the Month.	2d.	10th.	18th.	26th.
	″	″	″		″	″	″	″
Semidiameter	17.38	17.76	18.17	Semidiameter	18.61	19.07	19.55	20.03
Horizontal Parallax	1.62	1.66	1.70	Horizontal Parallax . .	1.74	1.78	1.83	1.87

NOTE.—The sign + indicates north declinations; the sign — indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	6 48 1.57	−0.088	+22 46 43.9	+0.32	16 5.9	1	6 40 42.09	−1.084	+22 57 39.7	+1.36	14 0.5
2	6 47 59.03	0.124	22 46 52.3	0.36	16 1.9	2	6 40 15.75	1.110	22 58 12.6	1.38	13 56.1
3	6 47 55.63	0.160	22 47 1.7	0.41	15 57.9	3	6 39 48.78	1.136	22 58 45.8	1.40	13 51.7
4	6 47 51.35	0.196	22 47 12.2	0.45	15 53.8	4	6 39 21.21	1.161	22 59 19.4	1.41	13 47.3
5	6 47 46.21	0.232	22 47 23.7	0.49	15 49.8	5	6 38 53.06	1.185	22 59 53.3	1.42	13 42.9
6	6 47 40.21	−0.268	+22 47 36.2	+0.53	15 45.8	6	6 38 24.33	−1.208	+23 0 27.4	+1.43	13 38.5
7	6 47 33.35	0.304	22 47 49.8	0.58	15 41.8	7	6 37 55.05	1.230	23 1 1.7	1.44	13 34.1
8	6 47 25.62	0.340	22 48 4.3	0.62	15 37.7	8	6 37 25.25	1.252	23 1 36.2	1.44	13 29.6
9	6 47 17.03	0.376	22 48 19.9	0.67	15 33.6	9	6 36 54.94	1.273	23 2 11.0	1.45	13 25.2
10	6 47 7.58	0.412	22 48 36.5	0.71	15 29.5	10	6 36 24.14	1.293	23 2 45.8	1.45	13 20.7
11	6 46 57.26	−0.448	+22 48 54.1	+0.75	15 25.4	11	6 35 52.86	−1.312	+23 3 20.7	+1.45	13 16.3
12	6 46 46.08	0.483	22 49 12.7	0.79	15 21.3	12	6 35 21.14	1.330	23 3 55.6	1.45	13 11.8
13	6 46 34.06	0.518	22 49 32.2	0.83	15 17.2	13	6 34 49.00	1.348	23 4 30.5	1.45	13 7.4
14	6 46 21.20	0.553	22 49 52.6	0.87	15 13.0	14	6 34 16.46	1.364	23 5 5.4	1.44	13 2.9
15	6 46 7.51	0.588	22 50 14.0	0.91	15 8.9	15	6 33 43.55	1.379	23 5 40.2	1.44	12 58.4
16	6 45 52.97	−0.622	+22 50 36.3	+0.95	15 4.7	16	6 33 10.29	−1.393	+23 6 14.9	+1.43	12 53.9
17	6 45 37.61	0.656	22 50 59.4	0.99	15 0.5	17	6 32 36.71	1.405	23 6 49.4	1.43	12 49.4
18	6 45 21.44	0.690	22 51 23.3	1.02	14 56.3	18	6 32 2.83	1.416	23 7 23.7	1.42	12 44.9
19	6 45 4.46	0.724	22 51 48.1	1.05	14 52.1	19	6 31 28.69	1.426	23 7 57.8	1.42	12 40.4
20	6 44 46.68	0.757	22 52 13.7	1.08	14 47.9	20	6 30 54.31	1.436	23 8 31.7	1.41	12 35.9
21	6 44 28.12	−0.789	+22 52 40.0	+1.11	14 43.6	21	6 30 19.72	−1.445	+23 9 5.3	+1.40	12 31.4
22	6 44 8.79	0.821	22 53 7.1	1.14	14 39.3	22	6 29 44.94	1.452	23 9 38.7	1.39	12 26.9
23	6 43 48.70	0.853	22 53 34.9	1.17	14 35.0	23	6 29 10.00	1.458	23 10 11.7	1.37	12 22.4
24	6 43 27.85	0.884	22 54 3.5	1.20	14 30.7	24	6 28 34.93	1.464	23 10 44.3	1.35	12 17.8
25	6 43 6.27	0.914	22 54 32.7	1.23	14 26.4	25	6 27 59.75	1.468	23 11 16.5	1.33	12 13.3
26	6 42 43.97	−0.944	+22 55 2.5	+1.26	14 22.1	26	6 27 24.49	−1.471	+23 11 48.3	+1.32	12 8.8
27	6 42 20.96	0.974	22 55 32.9	1.28	14 17.8	27	6 26 49.18	1.473	23 12 19.7	1.30	12 4.3
28	6 41 57.25	1.003	22 56 3.9	1.30	14 13.5	28	6 26 13.84	1.473	23 12 50.7	1.29	11 59.8
29	6 41 32.86	1.031	22 56 35.4	1.32	14 9.2	29	6 25 38.51	1.472	23 13 21.4	1.27	11 55.2
30	6 41 7.80	1.058	22 57 7.3	1.34	14 4.8	30	6 25 3.20	1.470	23 13 51.5	1.25	11 50.7
31	6 40 42.09	−1.084	+22 57 39.7	+1.36	14 0.5	31	6 24 27.94	−1.467	+23 14 21.0	+1.22	11 46.2
32	6 40 15.75	−1.110	+22 58 12.6	+1.38	13 56.1	32	6 23 52.76	−1.463	+23 14 50.0	+1.20	11 41.7

Day of the Month.	3d	11th.	19th.	27th.
	″	″	″	″
Semidiameter	20.52	21.00	21.43	21.82
Horizontal Parallax . . .	1.92	1.96	2.00	2.04

Day of the Month.	5th.	13th.	21st.	29th.	37th.
	″	″	″	″	″
Semidiameter .	22.15	22.37	22.50	22.52	22.43
Hor. Parallax .	2.07	2.09	2.10	2.11	2.10

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	22 7 57.97	+0.891	−13 8 59.1	+5.03	3 26.5	1	22 20 33.80	+1.110	−11 57 46.1	+6.30	1 37.2
2	22 8 19.48	0.901	13 6 57.7	5.09	3 22.9	2	22 21 0.50	1.114	11 55 14.6	6.32	1 33.7
3	22 8 41.23	0.911	13 4 55.0	5.14	3 19.4	3	22 21 27.29	1.118	11 52 42.5	6.35	1 30.2
4	22 9 3.21	0.920	13 2 50.9	5.20	3 15.8	4	22 21 54.17	1.122	11 50 9.8	6.37	1 26.7
5	22 9 25.41	0.929	13 0 45.6	5.25	3 12.2	5	22 22 21.13	1.126	11 47 36.6	6.39	1 23.2
6	22 9 47.83	+0.938	−12 58 39.1	+5.30	3 8.7	6	22 22 48.17	+1.129	−11 45 2.9	+6.41	1 19.7
7	22 10 10.46	0.947	12 56 31.4	5.35	3 5.2	7	22 23 15.29	1.132	11 42 28.7	6.43	1 16.2
8	22 10 33.31	0.956	12 54 22.4	5.40	3 1.6	8	22 23 42.49	1.135	11 39 54.1	6.45	1 12.8
9	22 10 56.36	0.965	12 52 12.3	5.45	2 58.0	9	22 24 9.75	1.138	11 37 19.0	6.47	1 9.3
10	22 11 19.61	0.973	12 50 1.1	5.50	2 54.5	10	22 24 37.07	1.140	11 34 43.5	6.49	1 5.8
11	22 11 43.06	+0.981	−12 47 48.7	+5.55	2 51.0	11	22 25 4.45	+1.142	−11 32 7.6	+6.51	1 2.3
12	22 12 6.71	0.989	12 45 35.3	5.59	2 47.4	12	22 25 31.89	1.144	11 29 31.3	6.52	0 58.9
13	22 12 30.54	0.997	12 43 20.7	5.63	2 43.9	13	22 25 59.38	1.146	11 26 54.7	6.53	0 55.4
14	22 12 54.56	1.005	12 41 5.0	5.68	2 40.4	14	22 26 26.91	1.148	11 24 17.8	6.54	0 51.9
15	22 13 18.77	1.013	12 38 48.2	5.72	2 36.9	15	22 26 54.49	1.150	11 21 40.6	6.55	0 48.4
16	22 13 43.16	+1.021	−12 36 30.4	+5.76	2 33.3	16	22 27 22.11	+1.152	−11 19 3.2	+6.56	0 45.0
17	22 14 7.71	1.029	12 34 11.7	5.80	2 29.7	17	22 27 49.77	1.153	11 16 25.5	6.57	0 41.5
18	22 14 32.43	1.036	12 31 52.0	5.84	2 26.2	18	22 28 17.45	1.154	11 13 47.6	6.58	0 38.0
19	22 14 57.32	1.043	12 29 31.3	5.88	2 22.7	19	22 28 45.15	1.155	11 11 9.5	6.59	0 34.5
20	22 15 22.37	1.049	12 27 9.6	5.92	2 19.2	20	22 29 12.88	1.156	11 8 31.2	6.60	0 31.1
21	22 15 47.58	+1.055	−12 24 47.1	+5.96	2 15.7	21	22 29 40.63	+1.156	−11 5 52.8	+6.61	0 27.6
22	22 16 12.94	1.061	12 22 23.7	6.00	2 12.2	22	22 30 8.39	1.157	11 3 14.3	6.61	0 24.1
23	22 16 38.45	1.066	12 19 59.4	6.03	2 8.7	23	22 30 36.15	1.157	11 0 35.7	6.61	0 20.6
24	22 17 4.10	1.072	12 17 34.3	6.07	2 5.2	24	22 31 3.92	1.157	10 57 57.0	6.61	0 17.2
25	22 17 29.88	1.078	12 15 8.4	6.10	2 1.7	25	22 31 31.69	1.156	10 55 18.3	6.61	0 13.7
26	22 17 55.79	+1.083	−12 12 41.7	+6.13	1 58.2	26	22 31 59.45	+1.156	−10 52 39.6	+6.61	0 10.2
27	22 18 21.84	1.088	12 10 14.1	6.16	1 54.7	27	22 32 27.19	1.156	10 50 1.0	6.61	0 6.7
28	22 18 48.01	1.093	12 7 45.9	6.19	1 51.2	28	22 32 54.92	1.155	10 47 22.4	6.60	0 3.3 23 59.8
29	22 19 14.29	1.098	12 5 17.0	6.22	1 47.7	29	22 33 22.63	1.154	10 44 43.9	6.60	23 56.3
30	22 19 40.68	1.102	12 2 47.4	6.25	1 44.2	30	22 33 50.31	1.153	10 42 5.5	6.59	23 52.8
31	22 20 7.19	+1.106	−12 0 17.0	+6.28	1 40.7	31	22 34 17.96	+1.152	−10 39 27.3	+6.59	23 49.4
32	22 20 33.80	+1.110	−11 57 46.1	+6.30	1 37.2	32	22 34 45.59	+1.150	−10 36 49.2	+6.58	23 45.9

Day of the Month.	3d.	11th.	19th.	27th.	Day of the Month.	4th.	12th.	20th.	28th.
	″	″	″	″		″	″	″	″
Semidiameter	7.52	7.45	7.39	7.34	Semidiameter	7.31	7.29	7.28	7.28
Horizontal Parallax . .	0.85	0.84	0.83	0.83	Horizontal Parallax . .	0.82	0.82	0.82	0.82

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

	MARCH.						APRIL.				
Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.	Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	22 33 22.63	+ 1.154	− 10 44 43.9	+ 6.60	23 56.3	1	22 47 9.52	+ 1.042	− 9 25 51.6	+ 5.95	22 8.1
2	22 33 50.31	1.153	10 42 5.5	6.59	23 52.8	2	22 47 34.45	1.036	9 23 29.4	5.91	22 4.6
3	22 34 17.96	1.152	10 39 27.3	6.59	23 49.4	3	22 47 59.22	1.029	9 21 8.1	5.87	22 1.1
4	22 34 45.59	1.150	10 36 49.2	6.58	23 45.9	4	22 48 23.84	1.023	9 18 47.8	5.83	21 57.6
5	22 35 13.18	1.148	10 34 11.3	6.57	23 42.5	5	22 48 48.30	1.016	9 16 28.5	5.79	21 54.1
6	22 35 40.72	+ 1.146	− 10 31 33.6	+ 6.56	23 38.9	6	22 49 12.59	+ 1.009	− 9 14 10.2	+ 5.75	21 50.6
7	22 36 8.21	1.144	10 28 56.2	6.55	23 35.5	7	22 49 36.71	1.002	9 11 53.0	5.70	21 47.0
8	22 36 35.66	1.142	10 26 19.0	6.54	23 32.0	8	22 50 0.67	0.995	9 9 36.8	5.65	21 43.4
9	22 37 3.05	1.140	10 23 42.1	6.53	23 28.6	9	22 50 24.46	0.988	9 7 21.7	5.61	21 39.9
10	22 37 30.38	1.138	10 21 5.5	6.52	23 25.1	10	22 50 48.06	0.980	9 5 7.7	5.56	21 36.4
11	22 37 57.65	+ 1.136	− 10 18 29.3	+ 6.51	23 21.6	11	22 51 11.48	+ 0.972	− 9 2 54.9	+ 5.51	21 32.9
12	22 38 24.87	1.133	10 15 53.4	6.49	23 18.1	12	22 51 34.72	0.964	9 0 43.2	5.46	21 29.3
13	22 38 52.03	1.130	10 13 17.9	6.47	23 14.7	13	22 51 57.79	0.956	8 58 32.6	5.41	21 25.8
14	22 39 19.11	1.127	10 10 42.8	6.45	23 11.2	14	22 52 20.66	0.948	8 56 23.3	5.36	21 22.3
15	22 39 46.11	1.124	10 8 8.1	6.43	23 7.7	15	22 52 43.33	0.940	8 54 15.2	5.31	21 18.7
16	22 40 13.02	+ 1.121	− 10 5 33.9	+ 6.41	23 4.2	16	22 53 5.80	+ 0.932	− 8 52 8.4	+ 5.26	21 15.1
17	22 40 39.86	1.117	10 3 0.2	6.39	23 0.7	17	22 53 28.06	0.924	8 50 2.8	5.21	21 11.6
18	22 41 6.61	1.113	10 0 27.0	6.37	22 57.2	18	22 53 50.13	0.915	8 47 58.6	5.15	21 8.0
19	22 41 33.27	1.109	9 57 54.4	6.35	22 53.7	19	22 54 11.98	0.906	8 45 55.7	5.10	21 4.4
20	22 41 59.83	1.105	9 55 22.3	6.33	22 50.2	20	22 54 33.61	0.897	8 43 54.2	5.04	21 0.8
21	22 42 26.29	+ 1.101	− 9 52 50.9	+ 6.31	22 46.7	21	22 54 55.02	+ 0.888	− 8 41 54.0	+ 4.98	20 57.2
22	22 42 52.64	1.097	9 50 20.1	6.28	22 43.2	22	22 55 16.21	0.879	8 39 55.3	4.92	20 53.6
23	22 43 18.89	1.092	9 47 49.9	6.25	22 39.7	23	22 55 37.17	0.869	8 37 58.0	4.86	20 50.0
24	22 43 45.03	1.087	9 45 20.2	6.22	22 36.2	24	22 55 57.90	0.859	8 36 2.2	4.80	20 46.4
25	22 44 11.05	1.082	9 42 51.3	6.19	22 32.7	25	22 56 18.41	0.849	8 34 7.8	4.74	20 42.8
26	22 44 36.94	+ 1.077	− 9 40 23.2	+ 6.16	22 29.2	26	22 56 38.67	+ 0.839	− 8 32 15.0	+ 4.68	20 39.2
27	22 45 2.70	1.072	9 37 55.9	6.13	22 25.7	27	22 56 58.69	0.829	8 30 23.7	4.61	20 35.6
28	22 45 28.34	1.066	9 35 29.4	6.09	22 22.2	28	22 57 18.47	0.819	8 28 34.0	4.54	20 32.0
29	22 45 53.85	1.060	9 33 3.7	6.05	22 18.7	29	22 57 38.00	0.809	8 26 45.8	4.48	20 28.4
30	22 46 19.22	1.054	9 30 38.8	6.02	22 15.2	30	22 57 57.28	0.799	8 24 59.3	4.41	20 24.8
31	22 46 44.44	+ 1.048	− 9 28 14.8	+ 5.99	22 11.6	31	22 58 16.30	+ 0.788	− 8 23 14.4	+ 4.34	20 21.2
32	22 47 9.52	+ 1.042	− 9 25 51.6	+ 5.95	22 8.1	32	22 58 35.06	+ 0.777	− 8 21 31.1	+ 4.27	20 17.5

Day of the Month.	8th.	16th.	24th.	Day of the Month.	1st.	9th.	17th.	25th.
	″	″	″		″	″	″	″
Semidiameter	7.29	7.31	7.35	Semidiameter	7.40	7.45	7.52	7.59
Horizontal Parallax	0.82	0.82	0.83	Horizontal Parallax . .	0.83	0.84	0.85	0.85

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

	MAY.						JUNE.				
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	22 58 16.30	+0.788	−8 23 14.4	+4.34	20 21.2	1	23 5 43.43	+0.396	−7 44 16.5	+1.83	18 26.6
2	22 58 35.06	0.777	8 21 31.1	4.27	20 17.5	2	23 5 52.74	0.381	7 43 33.9	1.73	18 22.8
3	22 58 53.57	0.766	8 19 49.4	4.20	20 13.9	3	23 6 1.71	0.367	7 42 53.5	1.64	18 19.0
4	22 59 11.81	0.755	8 18 9.5	4.13	20 10.3	4	23 6 10.33	0.353	7 42 15.2	1.55	18 15.2
5	22 59 29.78	0.744	8 16 31.3	4.06	20 6.7	5	23 6 18.60	0.338	7 41 39.2	1.46	18 11.4
6	22 59 47.48	+0.733	−8 14 54.8	+3.99	20 3.0	6	23 6 26.52	+0.323	−7 41 5.4	+1.37	18 7.6
7	23 0 4.92	0.721	8 13 20.0	3.92	19 59.4	7	23 6 34.09	0.308	7 40 33.9	1.27	18 3.8
8	23 0 22.08	0.709	8 11 47.0	3.84	19 55.8	8	23 6 41.31	0.294	7 40 4.6	1.18	18 0.0
9	23 0 38.96	0.698	8 10 15.8	3.77	19 52.1	9	23 6 48.18	0.279	7 39 37.6	1.09	17 56.2
10	23 0 55.56	0.686	8 8 46.4	3.70	19 48.4	10	23 6 54.69	0.264	7 39 12.8	0.99	17 52.3
11	23 1 11.87	+0.674	−8 7 18.9	+3.62	19 44.8	11	23 7 0.84	+0.249	−7 38 50.3	+0.89	17 48.5
12	23 1 27.90	0.662	8 5 53.2	3.54	19 41.1	12	23 7 6.62	0.234	7 38 30.1	0.79	17 44.7
13	23 1 43.64	0.650	8 4 29.3	3.46	19 37.4	13	23 7 12.05	0.219	7 38 12.2	0.70	17 40.8
14	23 1 59.09	0.638	8 3 7.3	3.38	19 33.7	14	23 7 17.11	0.204	7 37 56.6	0.60	17 37.0
15	23 2 14.25	0.626	8 1 47.2	3.30	19 30.0	15	23 7 21.80	0.189	7 37 43.3	0.51	17 33.1
16	23 2 29.10	+0.613	−8 0 29.0	+3.22	19 26.3	16	23 7 26.13	+0.173	−7 37 32.3	+0.41	17 29.2
17	23 2 43.65	0.600	7 59 12.8	3.14	19 22.6	17	23 7 30.09	0.157	7 37 23.6	0.31	17 25.4
18	23 2 57.89	0.587	7 57 58.6	3.05	19 18.9	18	23 7 33.68	0.142	7 37 17.2	0.22	17 21.5
19	23 3 11.82	0.574	7 56 46.4	2.97	19 15.2	19	23 7 36.90	0.126	7 37 13.2	0.12	17 17.6
20	23 3 25.44	0.561	7 55 36.2	2.89	19 11.5	20	23 7 39.75	0.111	7 37 11.5	+0.02	17 13.7
21	23 3 38.74	+0.548	−7 54 28.0	+2.81	19 7.8	21	23 7 42.23	+0.095	−7 37 12.2	−0.07	17 9.8
22	23 3 51.72	0.535	7 53 21.9	2.72	19 4.1	22	23 7 44.34	0.080	7 37 15.2	0.17	17 5.9
23	23 4 4.38	0.521	7 52 17.8	2.63	19 0.4	23	23 7 46.07	0.065	7 37 20.5	0.27	17 2.0
24	23 4 16.71	0.508	7 51 15.8	2.55	18 56.7	24	23 7 47.43	0.049	7 37 28.1	0.36	16 58.1
25	23 4 28.72	0.494	7 50 15.9	2.46	18 52.9	25	23 7 48.42	0.034	7 37 38.1	0.46	16 54.2
26	23 4 40.40	+0.480	−7 49 18.1	+2.37	18 49.1	26	23 7 49.04	+0.018	−7 37 50.4	−0.56	16 50.2
27	23 4 51.75	0.466	7 48 22.5	2.28	18 45.4	27	23 7 49.28	+0.002	7 38 4.9	0.65	16 46.3
28	23 5 2.77	0.452	7 47 28.9	2.19	18 41.7	28	23 7 49.15	−0.013	7 38 21.7	0.75	16 42.4
29	23 5 13.45	0.438	7 46 37.5	2.10	18 37.9	29	23 7 48.66	0.029	7 38 40.8	0.85	16 38.4
30	23 5 23.79	0.424	7 45 48.3	2.01	18 34.1	30	23 7 47.79	0.044	7 39 2.2	0.94	16 34.5
31	23 5 33.78	+0.410	−7 45 1.3	+1.92	18 30.3	31	23 7 46.55	−0.059	−7 39 25.9	−1.04	16 30.5
32	23 5 43.43	+0.396	−7 44 16.5	+1.83	18 26.6	32	23 7 44.94	−0.074	−7 39 51.9	−1.13	16 26.6

Day of the Month.	3d.	11th.	19th.	27th.	Day of the Month.	4th.	12th.	20th.	28th.
	″	″	″	″		″	″	″	″
Semidiameter	7.66	7.75	7.85	7.96	Semidiameter	8.07	8.17	8.28	8.39
Horizontal Parallax . .	0.86	0.87	0.88	0.90	Horizontal Parallax . .	0.91	0.92	0.93	0.95

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

JULY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	23 7 46.55	−0.059	−7 39 25.9	−1.04	16 30.5
2	23 7 44.94	0.074	7 39 51.9	1.13	16 26.6
3	23 7 42.98	0.090	7 40 20.1	1.23	16 22.6
4	23 7 40.65	0.105	7 40 50.5	1.32	16 18.6
5	23 7 37.95	0.120	7 41 23.2	1.41	16 14.7
6	23 7 34.89	−0.135	−7 41 58.1	−1.50	16 10.7
7	23 7 31.47	0.150	7 42 35.2	1.59	16 6.7
8	23 7 27.69	0.165	7 43 14.5	1.68	16 2.7
9	23 7 23.55	0.180	7 43 55.9	1.77	15 58.7
10	23 7 19.06	0.195	7 44 39.5	1.86	15 54.7
11	23 7 14.20	−0.210	−7 45 25.3	−1.95	15 50.7
12	23 7 8.99	0.225	7 46 13.2	2.04	15 46.6
13	23 7 3.42	0.240	7 47 3.1	2.13	15 42.6
14	23 6 57.50	0.254	7 47 55.1	2.22	15 38.5
15	23 6 51.24	0.268	7 48 49.2	2.31	15 34.5
16	23 6 44.64	−0.282	−7 49 45.4	−2.39	15 30.4
17	23 6 37.70	0.296	7 50 43.6	2.47	15 26.4
18	23 6 30.41	0.310	7 51 43.8	2.55	15 22.4
19	23 6 22.78	0.324	7 52 46.0	2.63	15 18.3
20	23 6 14.82	0.338	7 53 50.1	2.71	15 14.2
21	23 6 6.53	−0.352	−7 54 56.2	−2.79	15 10.2
22	23 5 57.90	0.366	7 56 4.2	2.87	15 6.1
23	23 5 48.95	0.379	7 57 14.0	2.95	15 2.0
24	23 5 39.69	0.392	7 58 25.6	3.03	14 57.9
25	23 5 30.12	0.405	7 59 39.0	3.10	14 53.8
26	23 5 20.23	−0.418	−8 0 54.3	−3.17	14 49.7
27	23 5 10.04	0.431	8 2 11.3	3.24	14 45.6
28	23 4 59.55	0.443	8 3 29.9	3.31	14 41.5
29	23 4 48.77	0.455	8 4 50.1	3.38	14 37.4
30	23 4 37.70	0.467	8 6 11.9	3.45	14 33.2
31	23 4 26.34	−0.479	−8 7 35.4	−3.51	14 29.1
32	23 4 14.71	−0.490	−8 9 0.3	−3.57	14 25.0

Day of the Month.	6th.	14th.	22d.	30th.
	″	″	″	″
Semidiameter	8.50	8.61	8.71	8.80
Horizontal Parallax . .	0.96	0.97	0.98	0.99

AUGUST.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	23 4 14.71	−0.490	−8 9 0.3	−3.57	14 25.0
2	23 4 2.81	0.501	8 10 26.7	3.63	14 20.9
3	23 3 50.64	0.512	8 11 54.6	3.69	14 16.7
4	23 3 38.20	0.523	8 13 23.9	3.75	14 12.6
5	23 3 25.51	0.534	8 14 54.5	3.81	14 8.5
6	23 3 12.58	−0.544	−8 16 26.5	−3.86	14 4.3
7	23 2 59.40	0.554	8 17 59.8	3.91	14 0.2
8	23 2 45.97	0.564	8 19 34.4	3.96	13 56.0
9	23 2 32.31	0.574	8 21 10.1	4.01	13 51.8
10	23 2 18.43	0.583	8 22 46.9	4.06	13 47.7
11	23 2 4.32	−0.592	−8 24 24.9	−4.11	13 43.5
12	23 1 50.00	0.601	8 26 3.9	4.15	13 39.3
13	23 1 35.48	0.610	8 27 43.9	4.19	13 35.2
14	23 1 20.75	0.618	8 29 24.9	4.23	13 31.0
15	23 1 5.82	0.626	8 31 7.0	4.27	13 26.8
16	23 0 50.70	−0.634	−8 32 49.8	−4.30	13 22.6
17	23 0 35.41	0.641	8 34 33.4	4.33	13 18.4
18	23 0 19.96	0.648	8 36 17.8	4.36	13 14.2
19	23 0 4.34	0.654	8 38 3.0	4.39	13 10.1
20	22 59 48.56	0.660	8 39 48.8	4.42	13 5.9
21	22 59 32.64	−0.666	−8 41 35.1	−4.44	13 1.7
22	22 59 16.59	0.671	8 43 22.0	4.46	12 57.5
23	22 59 0.40	0.676	8 45 9.4	4.48	12 53.3
24	22 58 44.09	0.681	8 46 57.2	4.50	12 49.1
25	22 58 27.68	0.686	8 48 45.3	4.52	12 44.9
26	22 58 11.17	−0.690	−8 50 33.8	−4.53	12 40.7
27	22 57 54.55	0.694	8 52 22.6	4.53	12 36.5
28	22 57 37.85	0.697	8 54 11.6	4.54	12 32.2
29	22 57 21.08	0.700	8 56 0.7	4.54	12 28.0
30	22 57 4.25	0.703	8 57 49.8	4.55	12 23.8
31	22 56 47.35	−0.705	−8 59 39.0	−4.55	12 19.6
32	22 56 30.40	−0.707	−9 1 28.2	−4.54	12 15.4

Day of the Month.	7th.	15th.	23d.	31st.
	″	″	″	″
Semidiameter	8.87	8.93	8.97	8.99
Horizontal Parallax . .	1.00	1.01	1.01	1.01

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign — indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m
1	22 56 30.40	−0.707	−9 1 28.2	−4.54	12 15.4
2	22 56 13.42	0.708	9 3 17.2	4.54	12 11.2
3	22 55 56.41	0.709	9 5 6.1	4.53	12 6.9
4	22 55 39.36	0.710	9 6 54.9	4.53	12 2.7
5	22 55 22.30	0.711	9 8 43.4	4.51	11 58.5
6	22 55 5.24	−0.711	−9 10 31.6	−4.50	11 54.3
7	22 54 48.17	0.710	9 12 19.5	4.48	11 50.1
8	22 54 31.11	0.710	9 14 7.0	4.47	11 45.9
9	22 54 14.06	0.709	9 15 54.0	4.45	11 41.7
10	22 53 57.05	0.708	9 17 40.5	4.43	11 37.5
11	22 53 40.08	−0.706	−9 19 26.4	−4.40	11 33.3
12	22 53 23.14	0.704	9 21 11.8	4.37	11 29.0
13	22 53 6.26	0.702	9 22 56.5	4.34	11 24.8
14	22 52 49.45	0.699	9 24 40.4	4.31	11 20.6
15	22 52 32.72	0.696	9 26 23.5	4.28	11 16.4
16	22 52 16.06	−0.692	−9 28 5.7	−4.24	11 12.2
17	22 51 59.49	0.688	9 29 47.1	4.20	11 8.0
18	22 51 43.03	0.684	9 31 27.5	4.16	11 3.8
19	22 51 26.69	0.679	9 33 6.9	4.12	10 59.6
20	22 51 10.46	0.674	9 34 45.3	4.07	10 55.4
21	22 50 54.36	−0.668	−9 36 22.6	−4.02	10 51.2
22	22 50 38.41	0.662	9 37 58.7	3.97	10 47.0
23	22 50 22.60	0.656	9 39 33.5	3.92	10 42.8
24	22 50 6.94	0.649	9 41 7.1	3.87	10 38.6
25	22 49 51.45	0.642	9 42 39.4	3.81	10 34.4
26	22 49 36.14	−0.634	−9 44 10.3	−3.75	10 30.3
27	22 49 21.01	0.626	9 45 39.9	3.69	10 26.1
28	22 49 6.05	0.618	9 47 7.9	3.63	10 21.9
29	22 48 51.30	0.610	9 48 34.5	3.57	10 17.7
30	22 48 36.76	0.602	9 49 59.5	3.51	10 13.6
31	22 48 22.42	−0.593	−9 51 23.0	−3.45	10 9.4
32	22 48 8.29	−0.584	−9 52 44.9	−3.38	10 5.2

OCTOBER.

Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m
1	22 48 22.42	−0.593	− 9 51 23.0	−3.45	10 9.4
2	22 48 8.29	0.584	9 52 44.9	3.38	10 5.2
3	22 47 54.39	0.574	9 54 5.2	3.31	10 1.1
4	22 47 40.73	0.564	9 55 23.8	3.24	9 56.9
5	22 47 27.31	0.554	9 56 40.6	3.17	9 52.7
6	22 47 14.12	−0.544	− 9 57 55.7	−3.10	9 48.6
7	22 47 1.18	0.533	9 59 9.0	3.02	9 44.5
8	22 46 48.51	0.522	10 0 20.5	2.94	9 40.3
9	22 46 36.11	0.511	10 1 30.2	2.86	9 36.2
10	22 46 23.98	0.500	10 2 38.0	2.78	9 32.0
11	22 46 12.12	−0.488	−10 3 43.8	−2.70	9 27.9
12	22 46 0.56	0.476	10 4 47.7	2.62	9 23.8
13	22 45 49.29	0.463	10 5 49.6	2.54	9 19.7
14	22 45 38.31	0.450	10 6 49.5	2.45	9 15.6
15	22 45 27.63	0.438	10 7 47.4	2.37	9 11.5
16	22 45 17.27	−0.425	−10 8 43.1	−2.28	9 7.4
17	22 45 7.23	0.412	10 9 36.7	2.19	9 3.3
18	22 44 57.50	0.398	10 10 28.2	2.10	8 59.2
19	22 44 48.10	0.384	10 11 17.5	2.01	8 55.1
20	22 44 39.04	0.370	10 12 4.6	1.92	8 51.0
21	22 44 30.32	−0.356	−10 12 49.6	−1.83	8 46.9
22	22 44 21.93	0.342	10 13 32.4	1.74	8 42.9
23	22 44 13.91	0.328	10 14 12.9	1.64	8 38.8
24	22 44 6.24	0.313	10 14 51.1	1.54	8 34.7
25	22 43 58.90	0.298	10 15 27.0	1.45	8 30.7
26	22 43 51.92	−0.283	−10 16 0.7	−1.36	8 26.6
27	22 43 45.31	0.268	10 16 32.0	1.26	8 22.6
28	22 43 39.07	0.253	10 17 1.0	1.16	8 18.6
29	22 43 33.19	0.238	10 17 27.7	1.06	8 14.5
30	22 43 27.68	0.222	10 17 52.1	0.97	8 10.5
31	22 43 22.54	−0.207	−10 18 14.1	−0.88	8 6.5
32	22 43 17.78	−0.191	−10 18 33.7	−0.78	8 2.5

Day of the Month.	8th.	16th.	24th.
	″	″	″
Semidiameter	8.99	8.97	8.94
Horizontal Parallax	1.01	1.01	1.01

Day of the Month.	2d.	10th.	18th.	26th.
	″	″	″	″
Semidiameter	8.89	8.81	8.73	8.63
Horizontal Parallax . .	1.00	0.99	0.98	0.97

Note.—The sign + indicates north declinations; the sign — indicates south declinations.

ALM 1906

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	22 43 17.78	−0.191	−10 18 33.7	−0.78	8 2.5	1	22 43 56.54	+0.299	−10 9 47.1	+2.21	6 5.2
2	22 43 13.39	0.175	10 18 51.0	0.68	7 58.5	2	22 44 3.92	0.315	10 8 52.8	2.31	6 1.4
3	22 43 9.38	0.159	10 19 5.9	0.58	7 54.5	3	22 44 11.68	0.331	10 7 56.3	2.40	5 57.6
4	22 43 5.75	0.143	10 19 18.4	0.47	7 50.5	4	22 44 19.81	0.347	10 6 57.6	2.49	5 53.8
5	22 43 2.51	0.127	10 19 28.5	0.37	7 46.5	5	22 44 28.32	0.363	10 5 56.7	2.59	5 50.1
6	22 42 59.65	−0.111	−10 19 36.2	−0.27	7 42.5	6	22 44 37.21	+0.379	−10 4 53.5	+2.68	5 46.3
7	22 42 57.18	0.095	10 19 41.6	0.17	7 38.6	7	22 44 46.47	0.394	10 3 48.1	2.77	5 42.5
8	22 42 55.10	0.078	10 19 44.5	−0.07	7 34.6	8	22 44 56.10	0.409	10 2 40.5	2.86	5 38.7
9	22 42 53.41	0.061	10 19 45.0	+0.03	7 30.7	9	22 45 6.10	0.424	10 1 30.7	2.95	5 35.0
10	22 42 52.11	0.045	10 19 43.1	0.14	7 26.7	10	22 45 16.47	0.439	10 0 18.7	3.04	5 31.2
11	22 42 51.20	−0.029	−10 19 38.8	+0.24	7 22.8	11	22 45 27.20	+0.454	− 9 59 4.6	+3.13	5 27.5
12	22 42 50.69	−0.013	10 19 32.0	0.35	7 18.8	12	22 45 38.29	0.469	9 57 48.4	3.22	5 23.7
13	22 42 50.58	+0.003	10 19 22.8	0.45	7 14.9	13	22 45 49.74	0.484	9 56 30.1	3.31	5 20.0
14	22 42 50.87	0.020	10 19 11.2	0.55	7 11.0	14	22 46 1.55	0.499	9 55 9.6	3.40	5 16.2
15	22 42 51.55	0.036	10 18 57.3	0.65	7 7.0	15	22 46 13.71	0.514	9 53 47.0	3.49	5 12.5
16	22 42 52.64	+0.053	−10 18 40.8	+0.75	7 3.1	16	22 46 26.23	+0.529	− 9 52 22.4	+3.58	5 8.8
17	22 42 54.13	0.070	10 18 21.9	0.85	6 59.2	17	22 46 39.10	0.543	9 50 55.7	3.66	5 5.1
18	22 42 56.01	0.087	10 18 0.6	0.95	6 55.3	18	22 46 52.32	0.557	9 49 27.0	3.74	5 1.3
19	22 42 58.29	0.104	10 17 36.9	1.04	6 51.4	19	22 47 5.87	0.571	9 47 56.3	3.82	4 57.6
20	22 43 0.98	0.121	10 17 10.8	1.14	6 47.6	20	22 47 19.75	0.585	9 46 23.6	3.90	4 53.9
21	22 43 4.06	+0.138	−10 16 42.3	+1.24	6 43.7	21	22 47 33.97	+0.599	− 9 44 48.9	+3.98	4 50.2
22	22 43 7.54	0.154	10 16 11.4	1.34	6 39.8	22	22 47 48.52	0.613	9 43 12.3	4.06	4 46.5
23	22 43 11.42	0.170	10 15 38.0	1.44	6 35.9	23	22 48 3.39	0.627	9 41 33.8	4.14	4 42.8
24	22 43 15.69	0.186	10 15 2.4	1.53	6 32.1	24	22 48 18.59	0.640	9 39 53.4	4.22	4 39.1
25	22 43 20.36	0.203	10 14 24.4	1.63	6 28.2	25	22 48 34.11	0.653	9 38 11.1	4.30	4 35.5
26	22 43 25.42	+0.219	−10 13 44.0	+1.73	6 24.4	26	22 48 49.94	+0.666	− 9 36 27.0	+4.38	4 31.8
27	22 43 30.87	0.235	10 13 1.1	1.83	6 20.5	27	22 49 6.07	0.679	9 34 41.1	4.46	4 28.2
28	22 43 36.71	0.251	10 12 16.0	1.93	6 16.6	28	22 49 22.51	0.692	9 32 53.3	4.53	4 24.5
29	22 43 42.93	0.267	10 11 28.6	2.02	6 12.8	29	22 49 39.26	0.704	9 31 3.7	4.60	4 20.9
30	22 43 49.54	0.283	10 10 39.0	2.12	6 9.0	30	22 49 56.30	0.716	9 29 12.4	4.67	4 17.2
31	22 43 56.54	+0.299	−10 9 47.1	+2.21	6 5.2	31	22 50 13.63	+0.728	− 9 27 19.4	+4.74	4 13.6
32	22 44 3.92	+0.315	−10 8 52.8	+2.31	6 1.4	32	22 50 31.26	+0.740	− 9 25 24.7	+4.82	4 9.9

Day of the Month.	3d.	11th.	19th.	27th.	Day of the Month.	5th.	13th.	21st.	29th.
	″	″	″	″		″	″	″	″
Semidiameter	8.52	8.41	8.30	8.18	Semidiameter	8.07	7.96	7.87	7.78
Horizontal Parallax . . .	0.96	0.95	0.93	0.92	Horizontal Parallax	0.91	0.90	0.89	0.88

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing or south declinations are decreasing. The sign − indicates that north declinations are decreasing or south declinations increasing.

GREENWICH MEAN TIME.

Month and Day.	Apparent Right Ascension.	Var. of R. A. for 1 Day.	Apparent Declination.	Var. of Decl. for 1 Day.	Meridian Passage.	Month and Day.	Apparent Right Ascension.	Var. of R. A. for 1 Day.	Apparent Declination.	Var. of Decl. for 1 Day.	Meridian Passage.
	Noon.	*Noon.*	*Noon.*	*Noon.*			*Noon.*	*Noon.*	*Noon.*	*Noon.*	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
Jan. 3	18 21 7.18	+15.652	−23 37 23.3	+7.25	23 28.7	July 2	18 27 48.40	−10.586	−23 36 50.5	−7.49	11 47.3
7	18 22 9.54	15.520	23 36 53.7	7.52	23 14.0	6	18 27 6.22	10.495	23 37 19.9	7.20	11 30.9
11	18 23 11.27	15.338	23 36 23.1	7.76	22 59.3	10	18 26 24.53	10.339	23 37 48.1	6.86	11 14.5
15	18 24 12.17	15.106	23 35 51.6	7.95	22 44.6	14	18 25 43.60	10.115	23 38 14.8	6.47	10 58.1
19	18 25 12.03	14.822	23 35 19.5	8.07	22 29.8	18	18 25 3.70	9.824	23 38 39.9	6.06	10 41.7
23	18 26 10.66	+14.485	−23 34 47.0	+8.15	22 15.1	22	18 24 25.10	−9.463	−23 39 3.3	−5.64	10 25.3
27	18 27 7.84	14.096	23 34 14.3	8.17	22 0.3	26	18 23 48.08	9.037	23 39 25.0	5.20	10 9.0
31	18 28 3.36	13.656	23 33 41.6	8.14	21 45.5	30	18 23 12.88	8.552	23 39 44.9	4.75	9 52.7
Feb. 4	18 28 57.03	13.170	23 33 9.2	8.05	21 30.7	Aug. 3	18 22 39.74	8.013	23 40 3.0	4.30	9 36.4
8	18 29 48.67	12.642	23 32 37.2	7.90	21 15.8	7	18 22 8.84	7.428	23 40 19.3	3.82	9 20.2
12	18 30 38.11	+12.073	−23 32 6.0	+7.67	21 0.8	11	18 21 40.38	−6.793	−23 40 33.6	−3.35	9 4.0
16	18 31 25.20	11.464	23 31 35.8	7.41	20 45.9	15	18 21 14.56	6.110	23 40 46.1	2.89	8 47.8
20	18 32 9.77	10.811	23 31 6.7	7.09	20 30.9	19	18 20 51.56	5.381	23 40 56.7	2.41	8 31.7
24	18 32 51.64	10.118	23 30 39.1	6.67	20 15.8	23	18 20 31.56	4.614	23 41 5.4	1.95	8 15.7
28	18 33 30.67	9.388	23 30 13.3	6.21	20 0.8	27	18 20 14.69	3.817	23 41 12.3	1.50	7 59.7
Mar. 4	18 34 6.71	+8.628	−23 29 49.4	+5.71	19 45.6	31	18 20 1.06	−2.995	−23 41 17.5	−1.09	7 43.7
8	18 34 39.66	7.843	23 29 27.6	5.15	19 30.4	Sept. 4	18 19 50.76	2.152	23 41 20.9	0.62	7 27.8
12	18 35 9.42	7.034	23 29 8.2	4.52	19 15.2	8	18 19 43.87	1.290	23 41 22.5	−0.19	7 12.0
16	18 35 35.90	6.202	23 28 51.4	3.86	18 59.9	12	18 19 40.45	−0.411	23 41 22.4	+0.26	6 56.2
20	18 35 59.00	5.343	23 28 37.3	3.16	18 44.5	16	18 19 40.58	+0.479	23 41 20.4	0.70	6 40.5
24	18 36 18.62	+4.466	−23 28 26.1	+2.44	18 29.1	20	18 19 44.29	+1.377	−23 41 16.8	+1.11	6 24.8
28	18 36 34.71	3.574	23 28 17.8	1.69	18 13.6	24	18 19 51.60	2.276	23 41 11.5	1.55	6 9.2
Apr. 1	18 36 47.22	2.678	23 28 12.6	0.91	17 58.1	28	18 20 2.49	3.168	23 41 4.4	1.99	5 53.7
5	18 36 56.14	1.785	23 28 10.5	+0.14	17 42.5	Oct. 2	18 20 16.93	4.051	23 40 55.6	2.44	5 38.2
9	18 37 1.49	+0.891	23 28 11.5	−0.64	17 26.9	6	18 20 34.88	4.920	23 40 44.9	2.90	5 22.8
13	18 37 3.27	−0.002	−23 28 15.6	−1.44	17 11.2	10	18 20 56.27	+5.776	−23 40 32.4	+3.35	5 7.4
17	18 37 1.48	0.890	23 28 23.0	2.21	16 55.4	14	18 21 21.07	6.622	23 40 18.1	3.82	4 52.1
21	18 36 56.16	1.769	23 28 33.3	2.95	16 39.6	18	18 21 49.22	7.447	23 40 1.8	4.30	4 36.8
25	18 36 47.35	2.631	23 28 46.6	3.69	16 23.7	22	18 22 20.61	8.244	23 39 43.7	4.77	4 21.6
29	18 36 35.14	3.470	23 29 2.8	4.39	16 7.7	26	18 22 55.13	9.009	23 39 23.6	5.29	4 6.5
May 3	18 36 19.63	−4.278	−23 29 21.7	−5.02	15 51.7	30	18 23 32.64	+9.740	−23 39 1.4	+5.81	3 51.4
7	18 36 0.96	5.052	23 29 43.0	5.62	15 35.7	Nov. 3	18 24 13.01	10.439	23 38 37.1	6.34	3 36.3
11	18 35 39.26	5.792	23 30 6.7	6.19	15 19.6	7	18 24 56.11	11.105	23 38 10.7	6.87	3 21.3
15	18 35 14.67	6.498	23 30 32.5	6.67	15 3.5	11	18 25 41.80	11.738	23 37 42.1	7.42	3 6.3
19	18 34 47.33	7.163	23 31 0.1	7.11	14 47.3	15	18 26 29.94	12.326	23 37 11.3	7.96	2 51.4
23	18 34 17.43	−7.778	−23 31 29.4	−7.47	14 31.1	19	18 27 20.35	+12.871	−23 36 38.4	+8.51	2 36.5
27	18 33 45.17	8.339	23 31 59.9	7.76	14 14.8	23	18 28 12.85	13.371	23 36 3.2	9.06	2 21.7
31	18 33 10.78	8.844	23 32 31.5	8.00	13 58.5	27	18 29 7.25	13.820	23 35 25.9	9.61	2 6.8
June 4	18 32 34.50	9.290	23 33 3.9	8.17	13 42.2	Dec. 1	18 30 3.35	14.222	23 34 46.3	10.16	1 52.0
8	18 31 56.57	9.674	23 33 36.9	8.27	13 25.8	5	18 31 0.97	14.580	23 34 4.6	10.69	1 37.3
12	18 31 17.22	−9.996	−23 34 10.1	−8.30	13 9.4	9	18 31 59.93	+14.891	−23 33 20.8	+11.21	1 22.5
16	18 30 36.69	10.255	23 34 43.3	8.25	12 53.0	13	18 33 0.03	15.150	23 32 34.9	11.70	1 7.8
20	18 29 55.26	10.446	23 35 16.1	8.14	12 36.6	17	18 34 1.06	15.357	23 31 47.2	12.19	0 53.1
24	18 29 13.21	10.565	23 35 48.4	7.98	12 20.2	21	18 35 2.81	15.508	23 30 57.7	12.60	0 38.4
28	18 28 30.82	10.611	23 36 20.0	7.76	12 3.7	25	18 36 5.05	15.602	23 30 6.4	13.02	0 23.7
July 2	18 27 48.40	−10.586	−23 36 50.5	−7.49	11 47.3	29	18 37 7.56	+15.646	−23 29 13.5	+13.39	0 9.0
6	18 27 6.22	−10.495	−23 37 19.9	−7.20	11 30.9	33	18 38 10.15	+15.642	−23 28 19.3	+13.71	23 50.6

Greatest semidiameter,	June	28, 1″.82	Greatest horizontal parallax,	June	28, 0″.48
Least semidiameter,	December	31, 1″.64	Least horizontal parallax,	December	31, 0″.43

GREENWICH MEAN TIME.

Month and Day.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Day. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Day. Noon.	Meridian Passage.	Month and Day.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Day. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Day. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
Jan. 3	6 38 34.76	−7.308	+22 11 2.2	+7.51	11 47.8	July 2	6 43 40.85	+9.619	+22 11 26.7	−9.50	0 5.2
7	6 38 5.64	7.247	22 11 32.3	7.51	11 31.6	6	6 44 19.31	9.607	22 10 48.2	9.74	23 46.3
11	6 37 36.85	7.140	22 12 2.3	7.48	11 15.4	10	6 44 57.66	9.562	22 10 8.8	9.95	23 31.2
15	6 37 8.58	6.986	22 12 32.1	7.41	10 59.2	14	6 45 35.76	9.485	22 9 28.6	10.12	23 16.1
19	6 36 41.02	6.787	22 13 1.6	7.31	10 43.0	18	6 46 13.50	9.378	22 8 47.8	10.26	23 1.0
23	6 36 14.34	−6.545	+22 13 30.5	+7.15	10 26.8	22	6 46 50.74	+9.237	+22 8 6.5	−10.35	22 45.9
27	6 35 48.72	6.256	22 13 58.8	6.96	10 10.7	26	6 47 27.35	9.062	22 7 25.0	10.37	22 30.8
31	6 35 24.35	5.925	22 14 26.2	6.72	9 54.5	30	6 48 3.19	8.853	22 6 43.5	10.36	22 15.7
Feb. 4	6 35 1.37	5.557	22 14 52.6	6.47	9 38.4	Aug. 3	6 48 38.14	8.618	22 6 2.1	10.32	22 0.6
8	6 34 39.94	5.155	22 15 18.0	6.22	9 22.4	7	6 49 12.10	8.355	22 5 20.9	10.22	21 45.4
12	6 34 20.17	−4.725	+22 15 42.4	+5.95	9 6.3	11	6 49 44.95	+8.064	+22 4 40.3	−10.07	21 30.2
16	6 34 2.18	4.265	22 16 5.6	5.62	8 50.3	15	6 50 16.58	7.745	22 4 0.3	9.89	21 15.0
20	6 33 46.09	3.774	22 16 27.4	5.27	8 34.3	19	6 50 46.87	7.394	22 3 21.2	9.64	20 59.8
24	6 33 32.02	3.258	22 16 47.8	4.90	8 18.4	23	6 51 15.69	7.012	22 2 43.2	9.34	20 44.5
28	6 33 20.05	2.725	22 17 6.6	4.51	8 2.4	27	6 51 42.93	6.606	22 2 6.5	9.00	20 29.2
Mar. 4	6 33 10.27	−2.169	+22 17 23.9	+4.11	7 46.6	31	6 52 8.51	+6.178	+22 1 31.2	−8.61	20 13.9
8	6 33 2.71	1.607	22 17 39.5	3.70	7 30.7	Sept. 4	6 52 32.33	5.730	22 0 57.6	8.16	19 58.6
12	6 32 57.43	1.032	22 17 53.5	3.27	7 14.9	8	6 52 54.32	5.261	22 0 25.9	7.66	19 43.2
16	6 32 54.46	−0.452	22 18 5.7	2.84	6 59.1	12	6 53 14.39	4.769	21 59 56.3	7.14	19 27.8
20	6 32 53.82	+0.132	22 18 16.2	2.39	6 43.4	16	6 53 32.44	4.255	21 59 28.8	6.57	19 12.3
24	6 32 55.53	+0.721	+22 18 24.8	+1.92	6 27.7	20	6 53 48.39	+3.722	+21 59 3.6	−5.97	18 56.8
28	6 32 59.59	1.309	22 18 31.6	1.45	6 12.0	24	6 54 2.19	3.177	21 58 41.0	5.31	18 41.3
Apr. 1	6 33 5.99	1.890	22 18 36.4	0.96	5 56.4	28	6 54 13.79	2.620	21 58 21.1	4.62	18 25.8
5	6 33 14.70	2.463	22 18 39.3	+0.47	5 40.9	Oct. 2	6 54 23.15	2.056	21 58 4.0	3.91	18 10.2
9	6 33 25.68	3.025	22 18 40.2	−0.02	5 25.3	6	6 54 30.23	1.485	21 57 49.8	3.19	17 54.6
13	6 33 38.88	+3.573	+22 18 39.1	−0.52	5 9.8	10	6 54 35.01	+0.906	+21 57 38.5	−2.45	17 39.0
17	6 33 54.25	4.111	22 18 36.0	1.02	4 54.3	14	6 54 37.47	+0.321	21 57 30.2	1.69	17 23.2
21	6 34 11.75	4.633	22 18 30.9	1.54	4 38.8	18	6 54 37.58	−0.264	21 57 25.0	0.90	17 7.5
25	6 34 31.29	5.136	22 18 23.7	2.06	4 23.4	22	6 54 35.36	0.846	21 57 23.0	−0.11	16 51.8
29	6 34 52.81	5.619	22 18 14.4	2.57	4 8.0	26	6 54 30.83	1.419	21 57 24.1	+0.67	16 36.0
May 3	6 35 16.21	+6.077	+22 18 3.1	−3.07	3 52.7	30	6 54 24.03	−1.981	+21 57 28.4	+1.45	16 20.1
7	6 35 41.39	6.508	22 17 49.8	3.59	3 37.4	Nov. 3	6 54 15.00	2.530	21 57 35.7	2.21	16 4.2
11	6 36 8.25	6.916	22 17 34.4	4.10	3 22.2	7	6 54 3.80	3.067	21 57 46.1	2.96	15 48.3
15	6 36 36.70	7.304	22 17 17.0	4.60	3 6.9	11	6 53 50.49	3.586	21 57 59.4	3.67	15 32.4
19	6 37 6.65	7.666	22 16 57.6	5.10	2 51.7	15	6 53 35.14	4.084	21 58 15.5	4.37	15 16.4
23	6 37 37.99	+7.999	+22 16 36.2	−5.60	2 36.5	19	6 53 17.85	−4.556	+21 58 34.4	+5.04	15 0.3
27	6 38 10.60	8.300	22 16 12.8	6.08	2 21.3	23	6 52 58.73	4.998	21 58 55.8	5.66	14 44.3
31	6 38 44.35	8.571	22 15 47.6	6.54	2 6.1	27	6 52 37.91	5.406	21 59 19.7	6.25	14 28.2
June 4	6 39 19.13	8.811	22 15 20.5	6.99	1 51.0	Dec. 1	6 52 15.52	5.781	21 59 45.8	6.79	14 12.1
8	6 39 54.80	9.020	22 14 51.7	7.41	1 35.8	5	6 51 51.70	6.121	22 0 14.0	7.27	13 56.0
12	6 40 31.25	+9.201	+22 14 21.2	−7.82	1 20.7	9	6 51 26.60	−6.424	+22 0 44.0	+7.71	13 39.8
16	6 41 8.37	9.352	22 13 49.1	8.21	1 5.6	13	6 51 0.37	6.686	22 1 15.7	8.10	13 23.7
20	6 41 46.02	9.469	22 13 15.5	8.57	0 50.5	17	6 50 33.17	6.904	22 1 48.8	8.41	13 7.5
24	6 42 24.08	9.553	22 12 40.5	8.91	0 35.4	21	6 50 5.20	7.074	22 2 23.0	8.67	12 51.3
28	6 43 2.40	9.602	22 12 4.2	9.22	0 20.3	25	6 49 36.64	7.196	22 2 58.2	8.90	12 35.1
July 2	6 43 40.85	+9.619	+22 11 26.7	−9.50	0 5.2	29	6 49 7.69	−7.272	+22 3 34.2	+9.06	12 18.9
6	6 44 19.31	+9.607	+22 10 48.2	−9.74	23 46.3	33	6 48 38.52	−7.302	+22 4 10.7	+9.14	12 2.7

Least semidiameter,	July	3,	1″.25	Least horizontal parallax,	July	3,	0″.28
Greatest semidiameter,	December	32,	1″.33	Greatest horizontal parallax,	December	32,	0″.31

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Jan. 1	172 31 35.2	4 10 51.8	− 12 7.6	+ 5 43 27.3	− 17 38.0	9.579 0204	9.973 5662	9.978 4073
2	176 38 34.4	4 3 10.9	12 37.2	5 25 13.1	18 48.1	9.585 5495	9.983 1585	9.987 8186
3	180 38 5.5	3 55 55.7	12 50.9	5 5 55.3	19 45.7	9.591 8996	9.992 3868	9.996 8629
4	184 30 34.5	3 49 6.4	12 50.0	4 45 45.4	20 32.2	9.598 0494	0.001 2467	0.005 5386
5	188 16 27.1	3 42 43.1	12 35.7	4 24 54.0	21 9.1	9.603 9821	0.009 7390	0.013 8486
6	191 56 9.0	3 36 44.8	− 12 9.2	+ 4 3 30.0	− 21 37.5	9.609 6841	0.017 8683	0.021 7991
7	195 30 4.8	3 31 10.8	11 31.9	3 41 41.4	21 58.5	9.615 1444	0.025 6422	0.029 3986
8	198 58 38.6	3 26 0.7	10 45.2	3 19 35.1	22 13.1	9.620 3546	0.033 0697	0.036 6567
9	202 22 13.8	3 21 13.3	9 50.4	2 57 17.0	22 22.2	9.625 3082	0.040 1613	0.043 5849
10	205 41 12.6	3 16 47.8	8 48.7	2 34 52.3	22 26.4	9.630 0007	0.046 9292	0.050 1951
11	208 55 56.4	3 12 43.2	− 7 41.5	+ 2 12 25.5	− 22 26.6	9.634 4286	0.053 3844	0.056 4985
12	212 6 45.7	3 8 58.5	6 29.8	1 50 0.2	22 23.4	9.638 5896	0.059 5389	0.062 5069
13	215 13 59.7	3 5 32.8	5 14.8	1 27 39.9	22 16.9	9.642 4827	0.065 4039	0.068 2316
14	218 17 57.4	3 2 25.5	3 57.4	1 5 27.4	22 7.7	9.646 1069	0.070 9912	0.073 6845
15	221 18 56.4	2 59 35.4	2 38.6	0 43 25.2	21 56.4	9.649 4625	0.076 3124	0.078 8761
16	224 17 13.8	2 57 2.0	− 1 19.2	+ 0 21 35.3	− 21 43.0	9.652 5494	0.081 3770	0.083 8165
17	227 13 5.8	2 54 44.6	+ 0 0.0	− 0 0 0.3	21 27.9	9.655 3685	0.086 1957	0.088 5157
18	230 6 48.1	2 52 42.6	1 18.2	0 21 20.0	21 11.1	9.657 9207	0.090 7777	0.092 9829
19	232 58 35.8	2 50 55.2	2 34.8	0 42 22.3	20 53.0	9.660 2067	0.095 1322	0.097 2267
20	235 48 43.2	2 49 22.0	3 49.0	1 3 5.8	20 33.7	9.662 2276	0.099 2674	0.101 2554
21	238 37 24.5	2 48 2.7	+ 5 0.4	− 1 23 29.5	− 20 13.3	9.663 9845	0.103 1915	0.105 0765
22	241 24 53.1	2 46 56.8	6 8.4	1 43 32.2	19 51.7	9.665 4782	0.106 9113	0.108 6970
23	244 11 22.4	2 46 4.0	7 12.5	2 3 12.7	19 29.0	9.666 7098	0.110 4343	0.112 1238
24	246 57 5.2	2 45 23.9	8 12.3	2 22 30.1	19 5.4	9.667 6800	0.113 7663	0.115 3626
25	249 42 14.2	2 44 56.2	9 7.3	2 41 23.3	18 40.6	9.668 3891	0.116 9132	0.118 4189
26	252 27 1.8	2 44 41.0	+ 9 57.0	− 2 59 51.2	− 18 14.8	9.668 8378	0.119 8803	0.121 2978
27	255 11 40.4	2 44 38.2	10 41.2	3 17 52.8	17 47.9	9.669 0263	0.122 6720	0.124 0035
28	257 56 22.2	2 44 47.5	11 19.5	3 35 26.9	17 19.9	9.668 9548	0.125 2927	0.126 5404
29	260 41 19.5	2 45 9.1	11 51.6	3 52 32.4	16 50.6	9.668 6235	0.127 7467	0.128 9118
30	263 26 44.5	2 45 42.9	12 17.2	4 9 7.9	16 19.9	9.668 0317	0.130 0363	0.131 1206
31	266 12 49.4	2 46 29.0	+ 12 36.0	− 4 25 12.0	− 15 47.8	9.667 1793	0.132 1648	0.133 1692
Feb. 1	268 59 46.6	2 47 27.5	12 47.7	4 40 43.2	15 14.1	9.666 0659	0.134 1341	0.135 0596
2	271 47 48.6	2 48 38.7	12 52.2	4 55 39.9	14 38.6	9.664 6906	0.135 9460	0.136 7933
3	274 37 8.4	2 50 2.9	12 49.3	5 10 0.2	14 1.2	9.663 0524	0.137 6016	0.138 3711
4	277 27 58.8	2 51 40.2	12 38.8	5 23 42.1	13 21.7	9.661 1505	0.139 1016	0.139 7932
5	280 20 33.1	2 53 31.2	+ 12 20.6	− 5 36 43.2	− 12 39.8	9.658 9841	0.140 4457	0.141 0594
6	283 15 5.6	2 55 36.0	11 54.7	5 49 1.4	11 55.4	9.656 5520	0.141 6340	0.142 1694
7	286 11 50.0	2 57 55.1	11 20.8	6 0 33.6	11 7.9	9.653 8535	0.142 6653	0.143 1213
8	289 11 0.7	3 0 29.0	10 39.4	6 11 17.0	10 17.6	9.650 8874	0.143 5373	0.143 9131
9	292 12 53.1	3 3 18.5	9 50.2	6 21 8.3	9 23.7	9.647 6531	0.144 2482	0.144 5423
10	295 17 43.0	3 6 23.9	+ 8 53.5	− 6 30 3.9	− 8 26.0	9.644 1501	0.144 7948	0.145 0054
11	298 25 46.5	3 9 45.9	7 49.6	6 37 59.6	7 24.0	9.640 3782	0.145 1735	0.145 2984
12	301 37 20.6	3 13 25.2	6 38.7	6 44 51.2	6 17.5	9.636 3379	0.145 3794	0.145 4161
13	304 52 42.9	3 17 22.4	5 21.4	6 50 33.9	5 6.0	9.632 0301	0.145 4074	0.145 3526
14	308 12 11.6	3 21 38.2	3 58.2	6 55 2.4	3 48.9	9.627 4567	0.145 2508	0.145 1013
15	311 36 5.8	3 26 13.5	+ 2 29.9	− 6 58 10.9	− 2 26.0	9.622 6202	0.144 9030	0.144 6548
16	315 4 45.2	3 31 8.7	+ 0 57.4	− 6 59 53.4	− 0 56.6	9.617 5255	0.144 3555	0.144 0041

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Feb. 15	311 36 5.8	3 26 13.5	+ 2 29.9	− 6 58 10.9	− 2 26.0	9.622 6202	0.144 9030	0.144 6548
16	315 4 45.2	3 31 8.7	+ 0 57.4	6 59 53.4	− 0 56.6	9.617 5255	0.144 3555	0.144 0041
17	318 38 30.2	3 36 24.8	− 0 38.1	7 0 3.1	+ 0 39.7	9.612 1773	0.143 5991	0.143 1393
18	322 17 41.9	3 42 2.3	2 15.6	6 58 32.9	2 23.3	9.606 5833	0.142 6232	0.142 0497
19	326 2 41.9	3 48 1.5	3 53.3	6 55 15.2	4 14.5	9.600 7533	0.141 4169	0.140 7231
20	329 53 52.4	3 54 23.2	− 5 29.6	− 6 50 1.9	+ 6 13.9	9.594 6995	0.139 9666	0.139 1459
21	333 51 35.8	4 1 7.4	7 2.5	6 42 44.7	8 22.0	9.588 4374	0.138 2588	0.137 3035
22	337 56 14.6	4 8 14.0	8 29.6	6 33 15.0	10 38.8	9.581 9866	0.136 2778	0.135 1798
23	342 8 11.2	4 15 42.9	9 48.8	6 21 24.2	13 4.3	9.575 3701	0.134 0071	0.132 7573
24	346 27 47.5	4 23 33.1	10 57.1	6 7 3.6	15 38.1	9.568 6159	0.131 4280	0.130 0168
25	350 55 24.2	4 31 43.6	− 11 52.0	− 5 50 5.3	+ 18 19.9	9.561 7581	0.128 5211	0.126 9383
26	355 31 20.9	4 40 12.6	12 30.6	5 30 21.6	21 8.3	9.554 8362	0.125 2656	0.123 5000
27	0 15 54.6	4 48 57.3	12 50.3	5 7 46.9	24 2.0	9.547 8969	0.121 6388	0.119 6791
28	5 9 19.5	4 57 54.4	12 48.5	4 42 16.5	26 59.1	9.540 9934	0.117 6178	0.115 4519
Mar. 1	10 11 46.1	5 6 59.8	12 23.3	4 13 48.6	29 56.4	9.534 1861	0.113 1783	0.110 7940
2	15 23 20.0	5 16 8.0	− 11 33.2	− 3 42 24.2	+ 32 51.1	9.527 5433	0.108 2958	0.105 6807
3	20 44 0.8	5 25 12.4	10 17.9	3 8 8.3	35 38.8	9.521 1398	0.102 9458	0.100 0880
4	26 13 40.9	5 34 5.4	8 38.0	2 31 10.5	38 14.4	9.515 0560	0.097 1046	0.093 9927
5	31 52 4.9	5 42 38.5	6 35.6	1 51 45.2	40 32.7	9.509 3775	0.090 7500	0.087 3737
6	37 38 48.0	5 50 41.9	4 14.2	1 10 12.8	42 27.8	9.504 1919	0.083 8615	0.080 2114
7	43 33 15.3	5 58 5.2	− 1 38.9	− 0 26 59.5	+ 43 53.5	9.499 5864	0.076 4217	0.072 4909
8	49 34 41.7	6 4 38.0	+ 1 3.7	+ 0 17 22.9	44 44.9	9.495 6450	0.068 4180	0.064 2022
9	55 42 11.0	6 10 9.5	3 46.2	1 2 17.5	44 57.4	9.492 4445	0.059 8432	0.055 3409
10	61 54 37.2	6 14 30.1	6 20.1	1 47 3.6	44 27.3	9.490 0507	0.050 6955	0.045 9079
11	68 10 44.9	6 17 31.2	8 37.4	2 30 57.6	43 13.3	9.488 5150	0.040 9796	0.035 9126
12	74 29 11.2	6 19 6.5	+ 10 30.4	+ 3 13 15.7	+ 41 15.7	9.487 8714	0.030 7093	0.025 3725
13	80 48 28.1	6 19 11.9	11 52.8	3 53 15.5	38 37.4	9.488 1344	0.019 9057	0.014 3129
14	87 7 4.8	6 17 46.1	12 40.5	4 30 18.5	35 22.8	9.489 2982	0.008 5984	0.002 7674
15	93 23 30.7	6 14 51.0	12 51.5	5 3 51.2	31 38.2	9.491 3365	9.996 8252	9.990 7778
16	99 36 18.8	6 10 31.5	12 26.0	5 33 27.4	27 31.1	9.494 2052	9.984 6316	9.978 3934
17	105 44 8.0	6 4 54.6	+ 11 26.7	+ 5 58 48.5	+ 23 9.4	9.497 8440	9.972 0709	9.965 6725
18	111 45 45.5	5 58 9.8	9 58.0	6 19 43.9	18 40.9	9.502 1802	9.959 2059	9.952 6791
19	117 40 8.9	5 50 28.1	8 5.6	6 36 10.5	14 12.9	9.507 1325	9.946 1016	9.939 4828
20	123 26 26.8	5 42 0.9	5 56.1	6 48 12.1	9 52.0	9.512 6146	9.932 8323	9.926 1601
21	129 3 59.4	5 32 59.8	3 36.0	6 55 58.4	5 43.0	9.518 5386	9.919 4766	9.912 7927
22	134 32 18.2	5 23 35.2	+ 1 11.9	+ 6 59 43.4	+ 1 50.0	9.524 8178	9.906 1190	9.899 4668
23	139 51 5.5	5 13 58.2	− 1 10.6	6 59 44.4	− 1 44.6	9.531 3694	9.892 8474	9.886 2726
24	145 0 13.3	5 4 17.6	3 26.5	6 56 20.8	4 59.1	9.538 1161	9.879 7543	9.873 3046
25	149 59 41.9	4 54 40.8	5 31.9	6 49 52.8	7 53.4	9.544 9870	9.866 9356	9.860 6597
26	154 49 38.4	4 45 14.5	7 24.0	6 40 40.6	10 27.4	9.551 9183	9.854 4893	9.848 4368
27	159 30 16.1	4 36 3.8	− 9 0.5	+ 6 29 4.5	− 12 41.7	9.558 8535	9.842 5146	9.836 7354
28	164 1 52.3	4 27 12.2	10 20.4	6 15 23.3	14 37.7	9.565 7434	9.831 1113	9.825 6544
29	168 24 47.7	4 18 42.7	11 23.1	5 59 54.7	16 16.7	9.572 5455	9.820 3767	9.815 2897
30	172 39 25.7	4 10 37.4	12 8.7	5 42 54.9	17 40.3	9.579 2235	9.810 4047	9.805 7324
31	176 46 10.8	4 2 57.2	12 37.8	5 24 38.6	18 50.0	9.585 7470	9.801 2827	9.797 0651
Apr. 1	180 45 28.7	3 55 42.9	− 12 51.1	+ 5 5 19.0	− 19 47.3	9.592 0910	9.793 0887	9.789 3621
2	184 37 45.2	3 48 54.5	− 12 49.8	+ 4 45 7.7	− 20 33.5	9.598 2342	9.785 8921	9.782 6849

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Apr. 1	180 45 28.7	3 55 42.9	−12 51.1	+5 5 19.0	−19 47.3	9.592 0910	9.793 0887	9.789 3621
2	184 37 45.2	3 48 54.5	12 49.8	4 45 7.7	20 33.5	9.598 2344	9.785 8921	9.782 6849
3	188 23 26.2	3 42 31.7	12 35.0	4 24 15.2	21 10.1	9.604 1600	9.779 7458	9.777 0796
4	192 2 57.1	3 36 34.2	12 8.2	4 2 50.3	21 38.3	9.609 8545	9.774 6894	9.772 5779
5	195 36 42.8	3 31 1.1	11 30.6	3 41 1.1	21 59.0	9.615 3071	9.770 7461	9.769 1940
6	199 5 7.3	3 25 51.7	−10 43.6	+3 18 54.3	−22 13.5	9.620 5091	9.767 9208	9.766 9246
7	202 28 33.8	3 21 5.0	9 48.6	2 56 35.9	22 22.4	9.625 4550	9.766 2023	9.765 7501
8	205 47 24.6	3 16 40.1	8 46.7	2 34 11.1	22 26.5	9.630 1393	9.765 5631	9.765 6354
9	209 2 1.0	3 12 36.0	7 39.4	2 11 44.2	22 26.6	9.634 5588	9.765 9607	9.766 5322
10	212 12 43.4	3 8 52.0	6 27.6	1 49 19.0	22 23.1	9.638 7116	9.767 3419	9.768 3816
11	215 19 51.3	3 5 27.0	− 5 12.5	+1 26 58.9	−22 16.5	9.642 5964	9.769 6425	9.771 1154
12	218 23 43.4	3 2 20.1	3 55.0	1 4 46.7	22 7.4	9.646 2124	9.772 7911	9.774 6602
13	221 24 37.3	2 59 30.6	2 36.1	0 42 44.8	21 56.0	9.649 5596	9.776 7129	9.778 9398
14	224 22 50.1	2 56 57.7	− 1 16.7	+0 20 55.3	21 42.6	9.652 6383	9.781 3311	9.783 8771
15	227 18 38.1	2 54 40.7	+ 0 2.4	−0 0 39.9	21 27.4	9.655 4492	9.786 5686	9.789 3962
16	230 12 16.7	2 52 39.1	+ 1 20.6	−0 21 59.0	−21 10.6	9.657 9933	9.792 3508	9.795 4238
17	233 4 1.2	2 50 52.2	2 37.1	0 43 0.8	20 52.6	9.660 2712	9.798 6067	9.801 8912
18	235 54 5.9	2 49 19.6	3 51.3	1 3 43.8	20 33.2	9.662 2841	9.805 2693	9.808 7334
19	238 42 44.8	2 48 0.6	5 2.6	1 24 6.9	20 12.7	9.664 0329	9.812 2765	9.815 8920
20	241 30 11.6	2 46 55.0	6 10.5	1 44 8.8	19 51.0	9.665 5186	9.819 5729	9.823 3129
21	244 16 39.3	2 46 2.5	+ 7 14.4	−2 3 48.7	−19 28.5	9.666 7422	9.827 1063	9.830 9478
22	247 2 20.9	2 45 22.8	8 14.1	2 23 5.4	19 4.7	9.667 7043	9.834 8322	9.838 7544
23	249 47 29.1	2 44 55.6	9 8.8	2 41 57.8	18 39.9	9.668 4056	9.842 7101	9.846 6949
24	252 32 16.4	2 44 40.9	9 58.5	3 0 24.9	18 14.1	9.668 8465	9.850 7049	9.854 7361
25	255 16 55.0	2 44 38.3	10 42.5	3 18 25.6	17 47.1	9.669 0272	9.858 7853	9.862 8492
26	258 1 37.2	2 44 48.0	+11 20.6	−3 35 58.9	−17 19.1	9.668 9480	9.866 9247	9.871 0089
27	260 46 35.2	2 45 9.9	11 52.5	3 53 3.5	16 49.8	9.668 6086	9.875 0993	9.879 1937
28	263 32 1.2	2 45 44.1	12 17.9	4 9 38.1	16 19.1	9.668 0091	9.883 2898	9.887 3855
29	266 18 7.5	2 46 30.5	12 36.4	4 25 41.2	15 46.9	9.667 1489	9.891 4789	9.895 5684
30	269 5 6.5	2 47 29.5	12 48.0	4 41 11.4	15 13.2	9.666 0275	9.899 6523	9.903 7289
May 1	271 53 10.8	2 48 41.1	+12 52.2	−4 56 7.0	−14 37.7	9.664 6442	9.907 7970	9.911 8553
2	274 42 33.1	2 50 5.6	12 49.1	5 10 26.1	14 0.3	9.662 9980	9.915 9027	9.919 9380
3	277 33 26.5	2 51 43.4	12 38.4	5 24 6.8	13 20.7	9.661 0882	9.923 9605	9.927 9691
4	280 26 4.4	2 53 34.7	12 20.0	5 37 6.7	12 38.7	9.658 9139	9.931 9630	9.935 9412
5	283 20 40.6	2 55 39.9	11 53.8	5 49 23.4	11 54.2	9.656 4740	9.939 9032	9.943 8481
6	286 17 29.1	2 57 59.5	+11 19.8	−6 0 54.2	−11 6.9	9.653 7673	9.947 7754	9.951 6843
7	289 16 44.6	3 0 34.0	10 38.0	6 11 36.1	10 16.3	9.650 7931	9.955 5743	9.959 4449
8	292 18 42.2	3 3 23.9	9 48.6	6 21 25.7	9 22.3	9.647 5507	9.963 2954	9.967 1253
9	295 23 37.7	3 6 29.8	8 51.7	6 30 19.5	8 24.5	9.644 0397	9.970 9340	9.974 7212
10	298 31 47.3	3 9 52.3	7 47.4	6 38 13.3	7 22.4	9.640 2598	9.978 4862	9.982 2285
11	301 43 28.1	3 13 32.1	+ 6 36.4	−6 45 2.8	− 6 15.8	9.636 2114	9.985 9475	9.989 6428
12	304 58 57.6	3 17 29.8	5 18.9	6 50 43.3	5 4.2	9.631 8955	9.993 3137	9.996 9597
13	308 18 34.1	3 21 46.2	3 55.5	6 55 9.4	3 47.0	9.627 3141	0.000 5801	0.004 1745
14	311 42 36.6	3 26 22.1	2 27.1	6 58 15.4	2 23.9	9.622 4701	0.007 7422	0.011 2824
15	315 11 24.9	3 31 18.0	+ 0 54.5	6 59 55.1	− 0 54.3	9.617 3673	0.014 7944	0.018 2777
16	318 45 19.5	3 36 34.7	− 0 41.2	−7 0 1.8	+ 0 42.2	9.612 0116	0.021 7313	0.025 1544
17	322 24 41.4	3 42 12.7	− 2 18.6	−6 58 28.4	+ 2 25.9	9.606 4104	0.028 5462	0.031 9058

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
May 17	322 24 41.4	3 42 12.7	− 2 18.6	−6 58 28.4	+ 2 25.9	9.606 4104	0.028 5462	0.031 9058
18	326 9 52.3	3 48 12.7	3 56.3	6 55 7.3	4 17.6	9.600 5734	0.035 2321	0.038 5241
19	330 1 14.3	3 54 35.0	5 32.5	6 49 50.4	6 17.6	9.594 5131	0.041 7807	0.045 0010
20	333 59 9.9	4 1 19.9	7 5.2	6 42 29.3	8 26.0	9.588 2451	0.048 1834	0.051 3267
21	338 4 1.6	4 8 27.3	8 32.2	6 32 55.4	10 43.1	9.581 7887	0.054 4295	0.057 4905
22	342 16 11.8	4 15 56.7	− 9 51.0	−6 21 0.1	+13 8.9	9.575 1676	0.060 5079	0.063 4803
23	346 36 2.2	4 23 47.5	10 59.0	6 6 34.8	15 43.0	9.568 4101	0.066 4059	0.069 2829
24	351 3 53.6	4 31 58.5	11 53.3	5 49 31.5	18 24.8	9.561 5496	0.072 1094	0.074 8835
25	355 40 5.3	4 40 28.1	12 31.5	5 29 42.8	21 13.5	9.554 6262	0.077 6031	0.080 2660
26	0 24 55.2	4 49 13.6	12 50.6	5 7 2.7	24 7.5	9.547 6870	0.082 8698	0.085 4124
27	5 18 36.5	4 58 10.8	−12 48.1	−4 41 26.9	+27 4.5	9.540 7854	0.087 8911	0.090 3036
28	10 21 19.6	5 7 16.4	12 22.1	4 12 53.6	30 2.0	9.533 9819	0.092 6471	0.094 9191
29	15 33 10.1	5 16 24.5	11 31.3	3 41 23.9	32 56.6	9.527 3452	0.097 1167	0.099 2374
30	20 54 7.3	5 25 28.6	10 15.2	3 7 2.9	35 43.9	9.520 9500	0.101 2781	0.103 2359
31	26 24 3.6	5 34 21.3	8 34.6	2 30 0.3	38 19.0	9.514 8771	0.105 1080	0.106 8915
June 1	32 2 43.2	5 42 53.7	− 6 31.5	−1 50 30.8	+40 36.6	9.509 2120	0.108 5836	0.110 1813
2	37 49 41.0	5 50 56.0	4 9.6	1 8 55.0	42 30.7	9.504 0425	0.111 6821	0.113 0830
3	43 44 21.8	5 58 18.1	− 1 34.0	−0 25 39.1	43 55.7	9.499 4557	0.114 3821	0.115 5757
4	49 46 0.1	6 4 49.1	+ 1 8.8	+0 18 44.9	44 46.0	9.495 5355	0.116 6620	0.117 6386
5	55 53 39.6	6 10 18.6	3 51.0	1 3 39.9	44 57.0	9.492 3585	0.118 5038	0.119 2556
6	62 6 13.7	6 14 36.9	+ 6 24.6	+1 48 25.0	+44 25.2	9.489 9899	0.119 8927	0.120 4132
7	68 22 27.0	6 17 35.6	8 41.2	2 32 16.7	43 10.2	9.488 4807	0.120 8164	0.121 1013
8	74 40 56.4	6 19 8.2	10 33.3	3 14 31.2	41 11.6	9.487 8643	0.121 2673	0.121 3143
9	81 0 13.6	6 19 10.7	11 54.8	3 54 26.3	38 32.0	9.488 1549	0.121 2424	0.121 0518
10	87 18 47.7	6 17 42.2	12 41.4	4 31 23.2	35 16.4	9.489 3454	0.120 7433	0.120 3182
11	93 35 8.5	6 14 44.6	+12 51.3	+5 4 49.2	+31 31.0	9.491 4097	0.119 7774	0.119 1219
12	99 47 48.9	6 10 22.5	12 24.7	5 34 18.0	27 23.3	9.494 3027	0.118 3534	0.117 4739
13	105 55 28.0	6 4 43.4	11 24.4	5 59 31.0	23 1.2	9.497 9638	0.116 4857	0.115 3909
14	111 56 53.4	5 57 56.9	9 54.9	6 20 18.1	18 32.6	9.502 3200	0.114 1921	0.112 8916
15	117 51 3.0	5 50 13.7	8 1.9	6 36 36.5	14 4.9	9.507 2896	0.111 4924	0.109 9971
16	123 37 5.6	5 41 45.0	+ 5 51.9	+6 48 30.2	+ 9 44.1	9.512 7863	0.108 4087	0.106 7298
17	129 14 21.8	5 32 42.5	3 31.7	6 56 8.8	5 35.6	9.518 7224	0.104 9635	0.103 1128
18	134 42 23.7	5 23 18.0	+ 1 7.5	6 59 46.7	+ 1 43.1	9.525 0112	0.101 1804	0.099 1692
19	140 0 53.7	5 13 40.7	− 1 14.8	6 59 41.1	− 1 50.9	9.531 5700	0.097 0822	0.094 9224
20	145 9 44.0	5 4 0.1	2 30.5	6 56 11.5	5 4.9	9.538 3217	0.092 6921	0.090 3942
21	150 8 55.1	4 54 23.6	− 5 35.6	+6 49 38.1	− 7 58.4	9.545 1953	0.088 0313	0.085 6059
22	154 58 34.6	4 44 57.7	7 27.1	6 40 21.3	10 31.8	9.552 1277	0.083 1204	0.080 5772
23	159 38 55.6	4 35 47.3	9 3.2	6 28 41.0	12 45.5	9.559 0624	0.077 9786	0.075 3268
24	164 10 15.6	4 26 56.3	10 22.6	6 14 56.3	14 41.0	9.565 9502	0.072 6237	0.069 8715
25	168 32 55.7	4 18 27.6	11 24.8	5 59 24.6	16 19.6	9.572 7491	0.067 0720	0.064 2271
26	172 47 19.0	4 10 23.0	−12 9.9	+5 42 22.2	−17 42.7	9.579 4232	0.061 3383	0.058 4074
27	176 53 50.2	4 2 43.6	12 38.5	5 24 3.8	18 51.9	9.585 9419	0.055 4358	0.052 4250
28	180 52 54.9	3 55 30.1	12 51.3	5 4 42.4	19 48.9	9.592 2801	0.049 3764	0.046 2915
29	184 44 59.0	3 48 42.5	12 49.5	4 44 29.7	20 34.8	9.598 4170	0.043 1713	0.040 0170
30	188 30 28.4	3 42 20.5	12 34.4	4 23 36.0	21 11.1	9.604 3361	0.036 8296	0.033 6105
July 1	192 9 48.4	3 36 23.6	−12 7.1	+4 2 10.2	−21 39.0	9.610 0236	0.030 3604	0.027 0803
2	195 43 23.9	3 30 51.3	−11 29.2	+3 40 20.3	−21 59.6	9.615 4689	0.023 7711	0.020 4337

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
July 1	192 9 48.4	3 36 23.6	− 12 7.1	+ 4 2 10.2	− 21 39.0	9.610 0236	0.030 3604	0.027 0803
2	195 43 23.9	3 30 51.3	11 29.2	3 40 20.3	21 59.6	9.615 4689	0.023 7711	0.020 4337
3	199 11 39.0	3 25 42.6	10 42.0	3 18 13.1	22 13.8	9.620 6635	0.017 0687	0.013 6767
4	202 34 56.7	3 20 56.5	9 46.7	2 55 54.5	22 22.6	9.625 6014	0.010 2585	0.006 8151
5	205 53 39.5	3 16 32.3	8 44.8	2 33 29.5	22 26.7	9.630 2779	0.003 3469	9.999 8544
6	209 8 8.5	3 12 28.9	− 7 37.2	+ 2 11 2.5	− 22 26.6	9.634 6896	9.996 3383	9.992 7991
7	212 18 44.0	3 8 45.4	6 25.3	1 48 37.5	22 22.9	9.638 8343	9.989 2374	9.985 6536
8	215 25 45.7	3 5 21.0	5 10.1	1 26 17.6	22 16.4	9.642 7111	9.982 0483	9.978 4218
9	218 29 32.0	3 2 14.7	3 52.6	1 4 5.6	22 7.2	9.646 3195	9.974 7746	9.971 1075
10	221 30 20.7	2 59 25.6	2 33.7	0 42 4.0	21 55.6	9.649 6587	9.967 4207	9.963 7146
11	224 28 28.8	2 56 53.2	− 1 14.3	+ 0 20 15.0	− 21 42.1	9.652 7292	9.959 9899	9.956 2474
12	227 24 12.5	2 54 36.7	+ 0 4.9	− 0 1 19.7	21 26.9	9.655 5318	9.952 4873	9.948 7100
13	230 17 47.4	2 52 35.5	1 23.1	0 22 38.3	21 10.1	9.658 0676	9.944 9163	9.941 1068
14	233 9 28.5	2 50 49.1	2 39.6	0 43 39.5	20 52.0	9.660 3376	9.937 2822	9.933 4432
15	235 59 30.4	2 49 16.8	3 53.5	1 4 21.9	20 32.6	9.662 3426	9.929 5906	9.925 7253
16	238 48 6.8	2 47 58.3	+ 5 4.8	− 1 24 44.4	− 20 12.1	9.664 0835	9.921 8481	9.917 9599
17	241 35 31.5	2 46 53.1	6 12.5	1 44 45.7	19 50.4	9.665 5614	9.914 0619	9.910 1553
18	244 21 57.6	2 46 1.0	7 16.4	2 4 24.8	19 27.7	9.666 7770	9.906 2413	9.902 3210
19	247 7 37.9	2 45 21.7	8 15.8	2 23 40.8	19 4.0	9.667 7311	9.898 3960	9.894 4681
20	249 52 45.2	2 44 54.9	9 10.4	2 42 32.4	18 39.1	9.668 4244	9.890 5390	9.886 6103
21	252 37 31.9	2 44 40.5	+ 9 59.9	− 3 0 58.7	− 18 13.3	9.668 8573	9.882 6841	9.878 7625
22	255 22 10.3	2 44 38.4	10 43.8	3 18 58.6	17 46.3	9.669 0302	9.874 8477	9.870 9424
23	258 6 52.7	2 44 48.5	11 21.7	3 36 31.0	17 18.2	9.668 9430	9.867 0494	9.863 1717
24	260 51 51.3	2 45 10.7	11 53.4	3 53 34.7	16 48.9	9.668 5959	9.859 3124	9.855 4749
25	263 37 18.3	2 45 45.2	12 18.5	4 10 8.3	16 18.1	9.667 9884	9.851 6630	9.847 8806
26	266 23 25.9	2 46 32.0	+ 12 36.9	− 4 26 10.4	− 15 45.9	9.667 1203	9.844 1319	9.840 4211
27	269 10 26.6	2 47 31.4	12 48.2	4 41 39.6	15 12.1	9.665 9909	9.836 7530	9.833 1328
28	271 58 33.0	2 48 43.4	12 52.3	4 56 34.0	14 36.5	9.664 5994	9.829 5660	9.826 0584
29	274 47 57.8	2 50 8.4	12 48.9	5 10 52.0	13 59.0	9.662 9452	9.822 6159	9.819 2447
30	277 38 54.2	2 51 46.5	12 37.9	5 24 31.4	13 19.4	9.661 0274	9.815 9517	9.812 7439
31	280 31 35.4	2 53 38.1	+ 12 19.3	− 5 37 30.0	− 12 37.4	9.658 8449	9.809 6287	9.806 6136
Aug. 1	283 26 15.2	2 55 43.8	11 52.8	5 49 45.4	11 52.8	9.656 3967	9.803 7067	9.800 9161
2	286 23 7.9	2 58 3.9	11 18.6	6 1 14.7	11 5.3	9.653 6819	9.798 2507	9.795 7187
3	289 22 28.1	3 0 38.9	10 36.7	6 11 55.0	10 14.7	9.650 6995	9.793 3295	9.791 0920
4	292 24 30.9	3 3 29.3	9 46.9	6 21 43.0	9 20.6	9.647 4489	9.789 0156	9.787 1094
5	295 29 31.9	3 6 35.6	+ 8 49.8	− 6 30 34.9	− 8 22.6	9.643 9295	9.785 3827	9.783 8450
6	298 37 47.6	3 9 58.6	7 45.4	6 38 26.9	7 20.5	9.640 1414	9.782 5052	9 781 3723
7	301 49 35.0	3 13 39.0	6 34.1	6 45 14.4	6 13.7	9.636 0846	9.780 4551	9.779 7620
8	305 5 11.6	3 17 37.3	5 16.4	6 50 52.6	5 1.8	9.631 7607	9.779 3007	9.779 0790
9	308 24 55.8	3 21 54.3	3 52.9	6 55 16.3	3 44.6	9.627 1712	9.779 1036	9.779 3806
10	311 49 6.8	3 26 30.8	+ 2 24.2	− 6 58 19.8	− 2 21.2	9.622 3190	9.779 9154	9.780 7130
11	315 18 4.1	3 31 27.3	+ 0 51.6	6 59 56.7	− 0 51.5	9.617 2082	9.781 7777	9.783 1120
12	318 52 8.3	3 36 44.6	− 0 44.1	7 0 0.5	+ 0 45.1	9.611 8447	9.784 7173	9.786 5949
13	322 31 40.5	3 42 23.3	2 21.6	6 58 23.9	2 29.1	9.606 2359	9.788 7450	9.791 1663
14	326 17 2.3	3 48 24.0	3 59.3	6 54 59.3	4 21.1	9.600 3916	9.793 8568	9.796 8131
15	330 8 36.0	3 54 47.0	− 5 35.4	− 6 49 38.8	+ 6 21.4	9.594 3245	9.800 0310	9.803 5053
16	334 6 43.9	4 1 32.6	− 7 8.0	− 6 42 13.7	+ 8 30.2	9.588 0504	9.807 2300	9.811 1983

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Aug. 16	334 6 43.9	4 1 32.6	− 7 8.0	− 6 42 13.7	+ 8 30.2	9.588 0504	9.807 2300	9.811 1983
17	338 11 48.8	4 8 40.7	8 34.8	6 32 35.6	10 47.4	9.581 5885	9.815 4022	9.819 8329
18	342 24 12.7	4 16 10.8	9 53.3	6 20 35.9	13 13.4	9.574 9625	9.824 4811	9.829 3370
19	346 44 17.5	4 24 2.3	11 0.9	6 6 5.9	15 47.9	9.568 2008	9.834 3902	9.839 6299
20	351 12 24.1	4 32 14.1	11 54.8	5 48 57.6	18 29.9	9.561 3375	9.845 0445	9.850 6223
21	355 48 51.8	4 40 44.1	− 12 32.4	− 5 29 3.8	+ 21 18.8	9.554 4129	9.856 3511	9.862 2187
22	0 33 57.4	4 49 29.7	12 50.8	5 6 18.3	24 12.8	9.547 4737	9.868 2131	9.874 3222
23	5 27 55.2	4 58 27.6	12 47.7	4 40 37.1	27 10.0	9.540 5738	9.880 5334	9.886 8340
24	10 30 55.2	5 7 33.3	12 21.0	4 11 58.3	30 7.5	9.533 7739	9.893 2119	9.899 6546
25	15 43 2.6	5 16 41.4	11 29.4	3 40 23.2	33 1.9	9.527 1430	9.906 1504	9.912 6871
26	21 4 16.6	5 25 45.4	− 10 12.5	− 3 5 57.1	+ 35 48.8	9.520 7561	9.919 2533	9.925 8371
27	26 34 29.5	5 34 37.6	8 31.1	2 28 49.7	38 23.5	9.514 6940	9.932 4275	9.939 0133
28	32 13 25.0	5 43 9.2	6 27.4	1 49 16.0	40 40.3	9.509 0426	9.945 5839	9.952 1287
29	38 0 37.8	5 51 10.5	4 5.0	1 7 36.7	42 33.8	9.503 8892	9.958 6378	9.965 1015
30	43 55 32.5	5 58 31.2	− 1 29.1	− 0 24 18.1	43 57.8	9.499 3213	9.971 5105	9.977 8556
31	49 57 23.3	6 5 0.5	+ 1 13.8	+ 0 20 7.4	+ 44 46.9	9.495 4225	9.984 1284	9.990 3206
Sept. 1	56 5 13.0	6 10 28.1	3 55.9	1 5 2.8	44 56.9	9.492 2689	9.996 4246	0.002 4329
2	62 17 55.5	6 14 44.0	6 29.1	1 49 47.0	44 24.0	9.489 9258	0.008 3391	0.014 1368
3	68 34 14.6	6 17 40.2	8 45.1	2 33 36.4	43 7.3	9.488 4435	0.019 8203	0.025 3843
4	74 52 47.3	6 19 10.1	10 36.3	3 15 47.3	41 7.2	9.487 8547	0.030 8242	0.036 1357
5	81 12 5.0	6 19 9.7	+ 11 56.8	+ 3 55 37.5	+ 38 26.5	9.488 1728	0.041 3155	0.046 3602
6	87 30 36.8	6 17 38.5	12 42.3	4 32 28.4	35 9.8	9.489 3908	0.051 2675	0.056 0351
7	93 46 52.6	6 14 38.2	12 51.0	5 5 47.4	31 23.7	9.491 4814	0.060 6617	0.065 1463
8	99 59 25.3	6 10 13.5	12 23.3	5 35 8.5	27 15.4	9.494 3991	0.069 4885	0.073 6881
9	106 6 54.3	6 4 32.3	11 22.1	6 0 13.6	22 53.0	9.498 0830	0.077 7454	0.081 6610
10	112 8 7.7	5 57 43.9	+ 9 51.7	+ 6 20 52.4	+ 18 24.2	9.502 4595	0.085 4361	0.089 0722
11	118 2 3.4	5 49 59.0	7 58.1	6 37 2.6	13 56.5	9.507 4469	0.092 5709	0.095 9343
12	123 47 50.7	5 41 29.1	5 47.7	6 48 48.2	9 36.3	9.512 9588	0.099 1644	0.102 2637
13	129 24 50.6	5 32 26.0	3 27.2	6 56 19.2	5 28.1	9.518 9073	0.105 2346	0.108 0799
14	134 52 35.3	5 23 0.7	+ 1 3.0	6 59 49.8	+ 1 36.2	9.525 2059	0.110 8025	0.113 4053
15	140 10 47.8	5 13 23.1	− 1 19.2	+ 6 59 37.6	− 1 57.2	9.531 7721	0.115 8913	0.118 2633
16	145 19 20.4	5 3 42.4	3 34.6	6 56 1.9	5 10.6	9.538 5288	0.120 5244	0.122 6776
17	150 18 14.0	4 54 6.1	5 39.3	6 49 23.1	8 3.4	9.545 4056	0.124 7260	0.126 6725
18	155 7 36.2	4 44 40.6	7 30.4	6 40 1.6	10 36.1	9.552 3391	0.128 5201	0.130 2717
19	159 47 40.5	4 35 30.8	9 6.0	6 28 17.2	12 49.4	9.559 2734	0.131 9300	0.133 4978
20	164 18 44.3	4 26 40.4	− 10 24.8	+ 6 14 28.8	− 14 44.3	9.566 1593	0.134 9781	0.136 3734
21	168 41 8.7	4 18 12.4	11 26.4	5 58 54.1	16 22.4	9.572 9551	0.137 6861	0.138 9186
22	172 55 17.1	4 10 8.5	12 11.0	5 41 49.1	17 45.1	9.579 6251	0.140 0733	0.141 1528
23	177 1 34.2	4 2 29.9	12 39.1	5 23 28.5	18 54.0	9.586 1389	0.142 1591	0.143 0944
24	181 0 25.6	3 55 17.1	12 51.4	5 4 5.2	19 50.5	9.592 4715	0.143 9607	0.144 7599
25	184 52 17.2	3 48 30.3	− 12 49.2	+ 4 43 51.1	− 20 36.0	9.598 6022	0.145 4939	0.146 1645
26	188 37 34.9	3 42 9.2	12 33.7	4 22 56.3	21 12.1	9.604 5145	0.146 7734	0.147 3221
27	192 16 44.0	3 36 13.1	12 6.1	4 1 29.7	21 39.8	9.610 1948	0.147 8122	0.148 2452
28	195 50 9.2	3 30 41.4	11 27.9	3 39 39.1	22 0.2	9.615 6325	0.148 5225	0.148 9453
29	199 18 14.7	3 25 33.4	10 40.4	3 17 31.4	22 14.2	9.620 8196	0.149 2149	0.149 4325
30	202 41 23.6	3 20 48.1	− 9 44.9	+ 2 55 12.5	− 22 22.8	9.625 7495	0.149 5991	0.149 7159
Oct. 1	205 59 58.2	3 16 24.5	− 8 42.7	+ 2 32 47.4	− 22 26.6	9.630 4179	0.149 7838	0.149 8036

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Oct. 1	205 59 58.2	3 16 24.5	− 8 42.7	+ 2 32 47.4	− 22 26.6	9.630 4179	0.149 7838	0.149 8036
2	209 14 19.6	3 12 21.7	7 35.0	2 10 20.5	22 26.5	9.634 8214	0.149 7761	0.149 7023
3	212 24 48.3	3 8 38.8	6 23.0	1 47 55.5	22 22.8	9.638 9581	0.149 5829	0.149 4186
4	215 31 43.6	3 5 14.8	5 7.7	1 25 35.8	22 16.1	9.642 8266	0.149 2098	0.148 9572
5	218 35 24.1	3 2 9.1	3 50.1	1 3 24.1	22 6.9	9.646 4263	0.148 6613	0.148 3226
6	221 36 7.6	2 59 20.7	− 2 31.2	+ 0 41 22.9	− 21 55.2	9.649 7572	0.147 9415	0.147 5182
7	224 34 11.0	2 56 48.8	− 1 11.8	+ 0 19 34.3	21 41.7	9.652 8196	0.147 0535	0.146 5484
8	227 29 50.5	2 54 32.8	+ 0 7.3	− 0 1 59.9	21 26.4	9.655 6141	0.146 0022	0.145 4147
9	230 23 21.7	2 52 32.0	1 25.4	0 23 18.1	21 9.6	9.658 1418	0.144 7864	0.144 1177
10	233 14 59.5	2 50 46.0	2 41.8	0 44 18.7	20 51.4	9.660 4035	0.143 4086	0.142 6592
11	236 4 58.4	2 49 14.2	+ 3 55.8	− 1 5 0.5	− 20 32.0	9.662 4003	0.141 8696	0.141 0399
12	238 53 32.4	2 47 56.1	5 6.9	1 25 22.3	20 11.4	9.664 1331	0.140 1697	0.139 2588
13	241 40 55.0	2 46 51.3	6 14.6	1 45 22.9	19 49.6	9.665 6028	0.138 3075	0.137 3160
14	244 27 19.4	2 45 59.8	7 18.3	2 5 1.3	19 27.0	9.666 8104	0.136 2840	0.135 2110
15	247 12 58.5	2 45 20.7	8 17.6	2 24 16.5	19 3.3	9.667 7565	0.134 0967	0.132 9409
16	249 58 5.0	2 44 54.3	+ 9 12.1	− 2 43 7.4	− 18 38.4	9.668 4417	0.131 7432	0.130 5033
17	252 42 51.2	2 44 40.2	10 1.4	3 1 32.9	18 12.5	9.668 8667	0.129 2209	0.127 8956
18	255 27 29.6	2 44 38.5	10 45.0	3 19 32.0	17 45.5	9.669 0315	0.126 5271	0.125 1152
19	258 12 12.3	2 44 48.9	11 22.8	3 37 3.5	17 17.3	9.668 9363	0.123 6592	0.122 1582
20	260 57 11.5	2 45 11.6	11 54.3	3 54 6.2	16 47.8	9.668 5811	0.120 6119	0.119 0198
21	263 42 39.6	2 45 46.5	+ 12 19.2	− 4 10 38.8	− 16 17.1	9.667 9655	0.117 3812	0.115 6957
22	266 28 48.6	2 46 33.7	12 37.4	4 26 40.0	15 44.7	9.667 0893	0.113 9624	0.112 1808
23	269 15 51.2	2 47 33.4	12 48.5	4 42 8.1	15 11.0	9.665 9518	0.110 3500	0.108 4690
24	272 3 59.8	2 48 45.8	12 52.3	4 57 1.4	14 35.3	9.664 5523	0.106 5373	0.104 5543
25	274 53 27.2	2 50 11.2	12 48.7	5 11 18.2	13 57.8	9.662 8900	0.102 5188	0.100 4300
26	277 44 26.6	2 51 49.8	+ 12 37.5	− 5 24 56.4	− 13 18.1	9.660 9640	0.098 2869	0.096 0886
27	280 37 11.3	2 53 41.9	12 18.6	5 37 53.7	12 36.0	9.658 7732	0.093 8342	0.091 5225
28	283 31 55.0	2 55 47.9	11 51.9	5 50 7.6	11 51.3	9.656 3168	0.089 1524	0.086 7230
29	286 28 51.9	2 58 8.4	11 17.4	6 1 35.5	11 3.8	9.653 5935	0.084 2331	0.081 6815
30	289 28 16.9	3 0 43.9	10 35.2	6 12 14.2	10 13.1	9.650 6028	0.079 0670	0.076 3882
31	292 30 24.9	3 3 34.7	+ 9 45.3	− 6 22 0.5	− 9 18.8	9.647 3438	0.073 6438	0.070 8327
Nov. 1	295 35 31.8	3 6 41.7	8 47.9	6 30 50.6	8 20.7	9.643 8162	0.067 9535	0.065 0050
2	298 43 53.8	3 10 5.2	7 43.3	6 38 40.6	7 18.4	9.640 0197	0.061 9855	0.058 8935
3	301 55 48.0	3 13 46.1	6 31.8	6 45 26.0	6 11.5	9.635 9547	0.055 7279	0.052 4877
4	305 11 32.0	3 17 45.0	5 13.9	6 51 2.0	4 59.5	9.631 6223	0.049 1712	0.045 7767
5	308 31 24.2	3 22 2.6	+ 3 50.2	− 6 55 23.3	− 3 42.0	9.627 0245	0.042 3027	0.038 7481
6	311 55 43.7	3 26 39.7	2 21.5	6 58 24.1	2 18.5	9.622 1641	0.035 1114	0.031 3910
7	315 24 50.2	3 31 36.8	+ 0 48.7	6 59 58.2	− 0 48.6	9.617 0454	0.027 5857	0.023 6945
8	318 59 4.2	3 36 54.8	− 0 47.2	6 59 59.1	+ 0 48.2	9.611 6740	0.019 7162	0.015 6496
9	322 38 47.0	3 42 34.2	2 24.7	6 58 19.2	2 32.6	9.606 0578	0.011 4939	0.007 2480
10	326 24 20.1	3 48 35.6	− 4 2.4	− 6 54 51.2	+ 4 24.8	9.600 2064	0.002 9116	9.998 4843
11	330 16 5.7	3 54 59.3	5 38.4	6 49 26.8	6 25.3	9.594 1325	9.993 9657	9.989 3559
12	334 14 26.2	4 1 45.5	7 10.8	6 41 57.8	8 34.2	9.587 8521	9.984 6553	9.979 8648
13	338 19 44.2	4 8 54.3	8 37.3	6 32 15.4	10 51.9	9.581 3847	9.974 9855	9.970 0191
14	342 32 22.2	4 16 25.3	9 55.5	6 20 11.1	13 18.1	9.574 7538	9.964 9677	9.959 8344
15	346 52 41.7	4 24 17.4	− 11 2.8	− 6 5 36.3	+ 15 52.7	9.567 9883	9.954 6226	9.949 3369
16	351 21 3.7	4 32 29.7	− 11 56.3	− 5 48 23.0	+ 18 35.1	9.561 1223	9.943 9824	9.938 5654

MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Nov. 16	351 21 3.7	4 32 29.7	− 11 56.3	− 5 48 23.0	+ 18 35.1	9.561 1223	9.943 9824	9.938 5654
17	355 57 47.2	4 41 0.1	12 33.3	5 28 23.9	21 24.1	9.554 1964	9.933 0932	9.927 5744
18	0 43 9.2	4 49 46.3	12 51.1	5 5 33.0	24 18.3	9.547 2573	9.922 0192	9.916 4389
19	5 37 23.8	4 58 44.5	12 47.2	4 39 46.2	27 15.5	9.540 3592	9.910 8465	9.905 2565
20	10 40 40.8	5 7 50.2	12 19.7	4 11 1.9	30 12.9	9.533 5635	9.899 6858	9.894 1524
21	15 53 5.3	5 16 58.5	− 11 27.3	− 3 39 21.5	+ 33 7.1	9.526 9389	9.888 6770	9.883 2817
22	21 14 36.4	5 26 2.3	10 9.7	3 4 50.1	35 53.9	9.520 5607	9.877 9909	9.872 8306
23	26 45 5.9	5 34 54.0	8 27.6	2 27 37.9	38 28.0	9.514 5101	9.867 8295	9.863 0178
24	32 24 17.4	5 43 24.9	6 23.2	1 48 0.0	40 44.4	9.508 8725	9.858 4260	9.854 0854
25	38 11 45.3	5 51 25.1	4 0.4	1 6 17.0	42 37.0	9.503 7360	9.850 0293	9.846 2911
26	44 6 53.9	5 58 44.2	− 1 24.1	− 0 22 55.8	+ 43 59.9	9.499 1876	9.842 9038	9.839 8991
27	50 8 56.7	6 5 11.9	+ 1 18.9	+ 0 21 31.3	44 47.6	9.495 3109	9.837 3066	9.835 1532
28	56 16 57.0	6 10 37.4	4 0.9	1 6 27.0	44 56.4	9.492 1817	9.833 4630	9.832 2564
29	62 29 47.6	6 14 51.0	6 33.7	1 51 10.1	44 22.4	9.489 8646	9.831 5487	9.831 3507
30	68 46 12.4	6 17 44.5	8 49.0	2 34 57.2	43 4.2	9.488 4097	9.831 6671	9.832 4981
Dec. 1	75 4 48.0	6 19 11.6	+ 10 39.4	+ 3 17 4.3	+ 41 2.7	9.487 8492	9.833 8376	9.835 6744
2	81 24 5.8	6 19 8.5	11 58.8	3 56 49.4	38 20.9	9.488 1956	9.837 9916	9.840 7680
3	87 42 34.9	6 17 34.4	12 43.1	4 33 34.3	35 3.1	9.489 4412	9.843 9786	9.847 5956
4	93 58 45.2	6 14 31.4	12 50.6	5 6 46.2	31 16.3	9.491 5584	9.851 5872	9.855 9205
5	100 11 9.8	6 10 4.2	12 21.9	5 35 59.6	27 7.4	9.494 5010	9.860 5614	9.865 4754
6	106 18 28.4	6 4 20.8	+ 11 19.7	+ 6 0 56.4	+ 22 44.6	9.498 2076	9.870 6282	9.875 9860
7	112 19 29.1	5 57 30.2	9 48.5	6 21 26.9	18 15.9	9.502 6044	9.881 5164	9.887 1880
8	118 13 10.3	5 49 43.7	7 54.2	6 37 28.6	13 48.4	9.507 6099	9.892 9717	9.898 8402
9	123 58 41.8	5 41 12.8	5 43.4	6 49 6.1	9 28.3	9.513 1371	9.904 7687	9.910 7336
10	129 35 24.9	5 32 8.8	3 22.7	6 56 29.4	5 20.7	9.519 0978	9.916 7144	9.922 6917
11	135 2 52.0	5 22 42.8	+ 0 58.5	+ 6 59 52.8	+ 1 29.1	9.525 4062	9.928 6491	9.934 5718
12	140 20 46.4	5 13 5.0	− 1 23.6	6 59 33.9	− 2 3.6	9.531 9796	9.940 4468	9.946 2627
13	145 29 1.0	5 3 24.3	3 38.7	6 55 52.2	5 16.3	9.538 7412	9.952 0097	9.957 6796
14	150 27 36.6	4 53 48.3	5 43.0	6 49 7.9	8 8.6	9.545 6208	9.963 2655	9.968 7616
15	155 16 41.2	4 44 23.2	7 33.6	6 39 41.6	10 40.7	9.552 5552	9.974 1630	9.979 4658
16	159 56 28.4	4 35 13.9	− 9 8.7	+ 6 27 53.0	− 12 53.3	9.559 4887	9.984 6673	9.989 7652
17	164 27 15.5	4 26 24.4	10 27.0	6 14 1.1	14 47.6	9.566 3727	9.994 7580	9.999 6445
18	168 49 24.2	4 17 57.0	11 28.1	5 58 23.3	16 25.2	9.573 1651	0.004 4243	0.009 0973
19	173 3 17.5	4 9 53.8	12 12.2	5 41 15.7	17 47.5	9.579 8306	0.013 6637	0.018 1242
20	177 9 20.3	4 2 16.0	12 39.7	5 22 52.9	18 55.9	9.586 3392	0.022 4798	0.026 7314
21	181 7 58.1	3 55 4.0	− 12 51.6	+ 5 3 28.0	− 19 52.0	9.592 6660	0.030 8804	0.034 9281
22	184 59 37.0	3 48 18.0	12 49.0	4 43 12.4	20 37.4	9.598 7901	0.038 8760	0.042 7256
23	188 44 42.7	3 41 57.6	12 33.0	4 22 16.4	21 13.4	9.604 6953	0.046 4788	0.050 1374
24	192 23 40.6	3 36 2.4	12 5.1	4 0 48.9	21 40.6	9.610 3682	0.053 7033	0.057 1783
25	195 56 55.6	3 30 31.6	11 26.6	3 38 57.7	22 0.7	9.615 7982	0.060 5642	0.063 8628
26	199 24 51.5	3 25 24.2	− 10 38.8	+ 3 16 49.6	− 22 14.5	9.620 9773	0.067 0759	0.070 2053
27	202 47 51.5	3 20 39.5	9 43.0	2 54 30.4	22 23.0	9.625 8992	0.073 2529	0.076 2207
28	206 6 17.8	3 16 16.6	8 40.7	2 32 5.1	22 26.8	9.630 5593	0.079 1102	0.081 9231
29	209 20 31.6	3 12 14.4	7 32.8	2 9 38.2	22 26.4	9.634 9545	0.084 6612	0.087 3261
30	212 30 53.3	3 8 32.2	6 20.7	1 47 13.4	22 22.6	9.639 0828	0.089 9194	0.092 4429
31	215 37 42.3	3 5 8.9	− 5 5.3	+ 1 24 53.9	− 22 15.9	9.642 9428	0.094 8979	0.097 2858
32	218 41 17.0	3 2 3.5	− 3 47.7	+ 1 2 42.5	− 22 6.5	9.646 5341	0.099 6080	

VENUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Jan. 1	255 21 58.5	1 35 13.1	− 0 3.0	+ 0 1 39.4	− 5 38.7	9.861 0258	0.222 8097	0.223 2925
3	258 32 21.0	1 35 9.6	+ 0 17.1	− 0 9 37.7	5 38.1	9.861 1589	0.223 7646	0.224 2262
5	261 42 36.8	1 35 6.3	0 36.9	0 20 52.6	5 36.5	9.861 2863	0.224 6772	0.225 1176
7	264 52 46.5	1 35 3.4	0 56.2	0 32 3.3	5 33.9	9.861 4076	0.225 5476	0.225 9676
9	268 2 50.7	1 35 0.6	1 14.9	0 43 7.8	5 30.3	9.861 5225	0.226 3776	0.226 7775
11	271 12 50.0	1 34 58.5	+ 1 32.6	− 0 54 4.1	− 5 25.7	9.861 6306	0.227 1672	0.227 5468
13	274 22 44.9	1 34 56.4	1 49.2	1 4 50.1	5 20.1	9.861 7316	0.227 9162	0.228 2757
15	277 32 36.0	1 34 54.7	2 4.5	1 15 24.0	5 13.6	9.861 8251	0.228 6250	0.228 9640
17	280 42 24.0	1 34 53.3	2 18.2	1 25 43.9	5 6.1	9.861 9110	0.229 2928	0.229 6116
19	283 52 9.3	1 34 52.1	2 30.3	1 35 47.9	4 57.7	9.861 9889	0.229 9202	0.230 2183
21	287 1 52.6	1 34 51.2	+ 2 40.5	− 1 45 34.1	− 4 48.4	9.862 0586	0.230 5058	0.230 7827
23	290 11 34.4	1 34 50.6	2 48.7	1 55 0.9	4 38.3	9.862 1199	0.231 0491	0.231 3055
25	293 21 15.3	1 34 50.3	2 54.9	2 4 6.6	4 27.3	9.862 1726	0.231 5514	0.231 7866
27	296 30 55.7	1 34 50.2	2 59.0	2 12 49.5	4 15.5	9.862 2166	0.232 0114	0.232 2258
29	299 40 36.3	1 34 50.4	3 0.9	2 21 8.1	4 2.9	9.862 2517	0.232 4299	0.232 6237
31	302 50 17.5	1 34 50.8	+ 3 0.6	− 2 29 0.9	− 3 49.7	9.862 2779	0.232 8073	0.232 9809
Feb. 2	305 59 59.7	1 34 51.4	2 58.1	2 36 26.5	3 35.7	9.862 2951	0.233 1446	0.233 2976
4	309 9 43.4	1 34 52.3	2 53.4	2 43 23.5	3 21.1	9.862 3031	0.233 4405	0.233 5733
6	312 19 29.0	1 34 53.4	2 46.6	2 49 50.7	3 5.9	9.862 3020	0.233 6963	0.233 8100
8	315 29 17.0	1 34 54.6	2 37.8	2 55 46.8	2 50.1	9.862 2918	0.233 9138	0.234 0074
10	318 39 7.7	1 34 56.1	+ 2 27.0	− 3 1 10.9	− 2 33.8	9.862 2726	0.234 0910	0.234 1648
12	321 49 1.4	1 34 57.6	2 14.5	3 6 2.0	2 17.1	9.862 2443	0.234 2286	0.234 2821
14	324 58 58.4	1 34 59.4	2 0.3	3 10 19.2	1 59.9	9.862 2070	0.234 3253	0.234 3584
16	328 8 59.2	1 35 1.3	1 44.7	3 14 1.5	1 42.3	9.862 1609	0.234 3811	0.234 3934
18	331 19 3.9	1 35 3.3	1 27.8	3 17 8.4	1 24.5	9.862 1060	0.234 3951	0.234 3856
20	334 29 12.7	1 35 5.5	+ 1 9.8	− 3 19 39.3	− 1 6.3	9.862 0427	0.234 3654	0.234 3348
22	337 39 25.9	1 35 7.7	0 50.9	3 21 33.7	0 47.9	9.861 9710	0.234 2933	0.234 2404
24	340 49 43.7	1 35 10.1	0 31.4	3 22 51.1	0 29.4	9.861 8911	0.234 1763	0.234 1008
26	344 0 6.3	1 35 12.5	+ 0 11.6	3 23 31.4	− 0 10.8	9.861 8033	0.234 0141	0.233 9167
28	347 10 33.9	1 35 15.0	− 0 8.5	3 23 34.3	+ 0 7.9	9.861 7079	0.233 8081	0.233 6879
Mar. 2	350 21 6.6	1 35 17.6	− 0 28.4	− 3 22 59.7	+ 0 26.6	9.861 6051	0.233 5564	0.233 4139
4	353 31 44.6	1 35 20.3	0 48.0	3 21 47.8	0 45.2	9.861 4953	0.233 2600	0.233 0948
6	356 42 27.9	1 35 23.0	1 7.0	3 19 58.7	1 3.7	9.861 3787	0.232 9183	0.232 7303
8	359 53 16.7	1 35 25.8	1 25.2	3 17 32.7	1 22.1	9.861 2557	0.232 5310	0.232 3206
10	3 4 11.1	1 35 28.6	1 42.4	3 14 30.2	1 40.3	9.861 1267	0.232 0989	0.231 8660
12	6 15 11.2	1 35 31.5	− 1 58.3	− 3 10 51.6	+ 1 58.2	9.860 9921	0.231 6215	0.231 3650
14	9 26 17.1	1 35 34.4	2 12.7	3 6 37.5	2 15.7	9.860 8523	0.231 0968	0.230 8171
16	12 37 28.9	1 35 37.4	2 25.6	3 1 48.8	2 32.9	9.860 7077	0.230 5254	0.230 2215
18	15 48 46.7	1 35 40.4	2 36.6	2 56 26.2	2 49.6	9.860 5587	0.229 9053	0.229 5770
20	19 0 10.5	1 35 43.4	2 45.7	2 50 30.5	3 5.9	9.860 4058	0.229 2361	0.228 8819
22	22 11 40.4	1 35 46.4	− 2 52.8	− 2 44 3.0	+ 3 21.5	9.860 2495	0.228 5148	0.228 1349
24	25 23 16.5	1 35 49.6	2 57.7	2 37 4.7	3 36.6	9.860 0902	0.227 7419	0.227 3354
26	28 34 58.9	1 35 52.8	3 0.4	2 29 36.8	3 51.1	9.859 9285	0.226 9155	0.226 4822
28	31 46 47.7	1 35 56.0	3 0.9	2 21 40.7	4 4.9	9.859 7648	0.226 0354	0.225 5750
30	34 58 43.0	1 35 59.2	2 59.1	2 13 17.7	4 17.9	9.859 5996	0.225 1010	0.224 6131
Apr. 1	38 10 44.8	1 36 2.5	− 2 55.1	− 2 4 29.5	+ 4 30.2	9.859 4336	0.224 1113	0.223 5955
3	41 22 53.3	1 36 5.9	− 2 49.0	− 1 55 17.5	+ 4 41.6	9.859 2670	0.223 0657	0.222 5222

VENUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Apr. 1	38 10 44.8	1 36 2.5	− 2 55.1	−2 4 29.5	+4 30.2	9.859 4336	0.224 1113	0.223 5955
3	41 22 53.3	1 36 5.9	2 49.0	1 55 17.5	4 41.6	9.859 2670	0.223 0657	0.222 5222
5	44 35 8.5	1 36 9.3	2 40.6	1 45 43.6	4 52.2	9.859 1006	0.221 9647	0.221 3931
7	47 47 30.6	1 36 12.7	2 30.3	1 35 49.3	5 1.9	9.858 9349	0.220 8074	0.220 2075
9	50 59 59.5	1 36 16.2	2 18.1	1 25 36.5	5 10.7	9.858 7703	0.219 5935	0.218 9652
11	54 12 35.4	1 36 19.7	− 2 4.1	−1 15 7.2	+5 18.5	9.858 6073	0.218 3227	0.217 6656
13	57 25 18.4	1 36 23.2	1 48.6	1 4 23.3	5 25.3	9.858 4464	0.216 9940	0.216 3075
15	60 38 8.5	1 36 26.8	1 31.7	0 53 26.8	5 31.1	9.858 2884	0.215 6060	0.214 8897
17	63 51 5.8	1 36 30.4	1 13.6	0 42 19.7	5 35.8	9.858 1335	0.214 1580	0.213 4104
19	67 4 10.4	1 36 34.1	0 54.6	0 31 4.1	5 39.5	9.857 9823	0.212 6471	0.211 8681
21	70 17 22.2	1 36 37.7	− 0 34.9	−0 19 42.2	+5 42.2	9.857 8353	0.211 0731	0.210 2618
23	73 30 41.3	1 36 41.4	− 0 14.7	−0 8 16.1	5 43.7	9.857 6930	0.209 4342	0.208 5901
25	76 44 7.7	1 36 45.0	+ 0 5.7	+0 3 12.0	5 44.1	9.857 5557	0.207 7294	0.206 8522
27	79 57 41.3	1 36 48.6	0 26.0	0 14 40.0	5 43.5	9.857 4240	0.205 9581	0.205 0468
29	83 11 22.2	1 36 52.2	0 46.0	0 26 5.5	5 41.0	9.857 2983	0.204 1183	0.203 1726
May 1	86 25 10.2	1 36 55.7	+ 1 5.4	+0 37 26.5	+5 39.0	9.857 1790	0.202 2099	0.201 2303
3	89 39 5.2	1 36 59.2	1 24.0	0 48 40.7	5 35.0	9.857 0665	0.200 2334	0.199 2191
5	92 53 7.1	1 37 2.6	1 41.5	0 59 45.9	5 30.0	9.856 9611	0.198 1874	0.197 1383
7	96 7 15.8	1 37 6.0	1 57.8	1 10 40.0	5 23.9	9.856 8632	0.196 0719	0.194 9881
9	99 21 31.1	1 37 9.2	2 12.5	1 21 20.9	5 16.8	9.856 7731	0.193 8868	0.192 7679
11	102 35 52.6	1 37 12.3	+ 2 25.6	+1 31 46.4	+5 8.6	9.856 6912	0.191 6314	0.190 4770
13	105 50 20.2	1 37 15.2	2 36.8	1 41 54.6	4 59.4	9.856 6176	0.189 3047	0.188 1143
15	109 4 53.5	1 37 18.0	2 46.0	1 51 43.4	4 49.2	9.856 5527	0.186 9055	0.185 6782
17	112 19 32.2	1 37 20.6	2 53.1	2 1 10.9	4 38.1	9.856 4965	0.184 4323	0.183 1676
19	115 34 15.9	1 37 23.0	2 58.0	2 10 15.3	4 26.1	9.856 4494	0.181 8839	0.180 5809
21	118 49 4.2	1 37 25.1	+ 3 0.6	+2 18 54.6	+4 13.1	9.856 4115	0.179 2585	0.177 9166
23	122 3 56.5	1 37 27.1	3 0.8	2 27 7.4	3 59.4	9.856 3829	0.176 5551	0.175 1737
25	125 18 52.5	1 37 28.8	2 58.8	2 34 51.8	3 44.9	9.856 3636	0.173 7724	0.172 3511
27	128 33 51.6	1 37 30.2	2 54.4	2 42 6.5	3 29.6	9.856 3538	0.170 9096	0.169 4479
29	131 48 53.1	1 37 31.3	2 47.8	2 48 49.9	3 13.7	9.856 3535	0.167 9657	0.166 4630
31	135 3 56.6	1 37 32.1	+ 2 39.1	+2 55 0.8	+2 57.1	9.856 3627	0.164 9399	0.163 3963
June 2	138 19 1.3	1 37 32.5	2 28.3	3 0 37.9	2 39.9	9.856 3813	0.161 8322	0.160 2475
4	141 34 6.7	1 37 32.7	2 15.6	3 5 40.1	2 22.2	9.856 4093	0.158 6422	0.157 0165
6	144 49 12.2	1 37 32.6	2 1.1	3 10 6.5	2 4.1	9.856 4467	0.155 3701	0.153 7031
8	148 4 16.9	1 37 32.0	1 45.1	3 13 56.2	1 45.5	9.856 4931	0.152 0153	0.150 3068
10	151 19 20.1	1 37 31.1	+ 1 27.8	+3 17 8.5	+1 26.6	9.856 5486	0.148 5774	0.146 8272
12	154 34 21.3	1 37 29.9	1 9.3	3 19 42.7	1 7.5	9.856 6129	0.145 0559	0.143 2631
14	157 49 19.7	1 37 28.3	0 49.9	3 21 38.5	0 48.2	9.856 6859	0.141 4488	0.139 6126
16	161 4 14.5	1 37 26.4	0 30.0	3 22 55.4	0 28.7	9.856 7672	0.137 7545	0.135 8748
18	164 19 5.2	1 37 24.1	+ 0 9.6	3 23 33.3	+0 9.2	9.856 8566	0.133 9730	0.132 0486
20	167 33 50.9	1 37 21.5	− 0 10.9	+3 23 32.1	−0 10.4	9.856 9538	0.130 1016	0.128 1316
22	170 48 31.1	1 37 18.6	0 31.2	3 22 51.8	0 29.9	9.857 0586	0.126 1387	0.124 1229
24	174 3 5.1	1 37 15.3	0 51.1	3 21 32.6	0 49.2	9.857 1704	0.122 0838	0.120 0211
26	177 17 32.2	1 37 11.7	1 10.4	3 19 34.8	1 8.4	9.857 2891	0.117 9348	0.115 8251
28	180 31 51.8	1 37 7.8	1 28.8	3 16 59.0	1 27.4	9.857 4141	0.113 6916	0.111 5341
30	183 46 3.5	1 37 3.7	− 1 46.0	+3 13 45.6	− 1 46.0	9.857 5451	0.109 3526	0.107 1473
July 2	187 0 6.6	1 36 59.3	− 2 1.8	+3 9 55.3	− 2 4.2	9.857 6817	0.104 9180	0.102 6647

VENUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude. Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
July 2	187 0 6.6	1 36 59.3	− 2 1.8	+ 3 9 55.3	− 2 4.2	9.857 6817	0.104 9180	0.102 6647
4	190 14 0.7	1 36 54.7	2 16.1	3 5 29.0	2 22.0	9.857 8234	0.100 3873	0.098 0859
6	193 27 45.4	1 36 49.9	2 28.6	3 0 27.6	2 39.3	9.857 9698	0.095 7604	0.093 4110
8	196 41 20.3	1 36 44.9	2 39.3	2 54 52.1	2 56.1	9.858 1204	0.091 0373	0.088 6388
10	199 54 44.9	1 36 39.7	2 47.9	2 48 43.7	3 12.2	9.858 2747	0.086 2156	0.083 7680
12	203 7 59.2	1 36 34.4	− 2 54.5	+ 2 42 3.6	− 3 27.7	9.858 4322	0.081 2955	0.078 7980
14	206 21 2.7	1 36 29.0	2 58.8	2 34 53.2	3 42.5	9.858 5924	0.076 2751	0.073 7265
16	209 33 55.4	1 36 23.6	3 0.8	2 27 13.9	3 56.6	9.858 7548	0.071 1519	0.068 5511
18	212 46 37.2	1 36 18.1	3 0.6	2 19 7.2	4 9.9	9.858 9189	0.065 9240	0.063 2705
20	215 59 7.9	1 36 12.6	2 58.1	2 10 34.7	4 22.4	9.859 0842	0.060 5900	0.057 8821
22	219 11 27.5	1 36 7.1	− 2 53.4	+ 2 1 38.1	− 4 34.0	9.859 2502	0.055 1467	0.052 3834
24	222 23 36.2	1 36 1.6	2 46.5	1 52 19.1	4 44.7	9.859 4163	0.049 5922	0.046 7730
26	225 35 34.0	1 35 56.2	2 37.6	1 42 39.6	4 54.6	9.859 5820	0.043 9253	0.041 0486
28	228 47 21.1	1 35 50.9	2 26.7	1 32 41.3	5 3.5	9.859 7468	0.038 1429	0.035 2082
30	231 58 57.6	1 35 45.7	2 14.0	1 22 26.2	5 11.4	9.859 9102	0.032 2444	0.029 2511
Aug. 1	235 10 23.9	1 35 40.7	− 1 59.6	+ 1 11 56.2	− 5 18.4	9.860 0717	0.026 2284	0.023 1761
3	238 21 40.3	1 35 35.8	1 43.8	1 1 13.3	5 24.3	9.860 2308	0.020 0940	0.016 9820
5	241 32 47.0	1 35 31.0	1 26.7	0 50 19.6	5 29.2	9.860 3870	0.013 3400	0.010 6679
7	244 43 44.5	1 35 26.5	1 8.6	0 39 17.0	5 33.2	9.860 5398	0.007 4652	0.004 2316
9	247 54 33.1	1 35 22.2	0 49.5	0 28 7.5	5 36.1	9.860 6888	0.000 9669	9.997 6711
11	251 5 13.5	1 35 18.2	− 0 29.9	+ 0 16 53.4	− 5 37.9	9.860 8335	9.994 3435	9.990 9836
13	254 15 46.0	1 35 14.4	− 0 10.0	+ 0 5 36.5	5 38.7	9.860 9735	9.987 5911	9.984 1656
15	257 26 11.2	1 35 10.8	+ 0 10.0	− 0 5 40.9	5 38.5	9.861 1082	9.980 7067	9.977 2139
17	260 36 29.4	1 35 7.5	0 30.0	0 16 56.8	5 37.2	9.861 2375	9.973 6868	9.970 1248
19	263 46 41.3	1 35 4.6	0 49.6	0 28 9.3	5 35.0	9.861 3608	9.966 5273	9.962 8938
21	266 56 47.7	1 35 1.9	+ 1 8.5	− 0 39 16.3	− 5 31.7	9.861 4778	9.959 2238	9.955 5171
23	270 6 48.9	1 34 59.5	1 26.6	0 50 15.7	5 27.4	9.861 5881	9.951 7729	9.947 9907
25	273 16 45.6	1 34 57.3	1 43.6	1 1 5.5	5 22.2	9.861 6914	9.944 1700	9.940 3106
27	276 26 38.2	1 34 55.5	1 59.3	1 11 43.9	5 16.0	9.861 7874	9.936 4118	9.932 4734
29	279 36 27.5	1 34 53.9	2 13.6	1 22 8.9	5 8.8	9.861 8758	9.928 4949	9.924 4762
31	282 46 14.0	1 34 52.6	+ 2 26.2	− 1 32 18.6	− 5 0.7	9.861 9563	9.920 4166	9.916 3160
Sept. 2	285 55 58.2	1 34 51.6	2 37.1	1 42 11.3	4 51.7	9.862 0288	9.912 1739	9.907 9902
4	289 5 40.8	1 34 51.0	2 46.1	1 51 45.1	4 41.9	9.862 0929	9.903 7641	9.899 4950
6	292 15 22.3	1 34 50.5	2 53.0	2 0 58.4	4 31.2	9.862 1486	9.895 1825	9.890 8264
8	295 25 3.2	1 34 50.4	2 57.8	2 9 49.5	4 19.7	9.862 1956	9.886 4260	9.881 9807
10	298 34 44.0	1 34 50.5	+ 3 0.5	− 2 18 16.8	− 4 7.4	9.862 2338	9.877 4897	9.872 9526
12	301 44 25.3	1 34 50.8	3 0.9	2 26 18.7	3 54.4	9.862 2630	9.868 3684	9.863 7359
14	304 54 7.4	1 34 51.3	2 59.2	2 33 54.0	3 40.7	9.862 2833	9.859 0547	9.854 3242
16	308 3 50.9	1 34 52.2	2 55.2	2 41 1.1	3 26.3	9.862 2945	9.849 5435	9.844 7119
18	311 13 36.1	1 34 53.2	2 49.2	2 47 38.9	3 11.3	9.862 2966	9.839 8281	9.834 8909
20	314 23 23.6	1 34 54.4	+ 2 41.1	− 2 53 46.0	− 2 55.7	9.862 2896	9.829 9000	9.824 8551
22	317 33 13.6	1 34 55.7	2 31.0	2 59 21.5	2 39.6	9.862 2736	9.819 7550	9.814 5988
24	320 43 6.6	1 34 57.3	2 19.1	3 4 24.2	2 23.0	9.862 2485	9.809 3856	9.804 1148
26	323 53 2.8	1 34 59.0	2 5.5	3 8 53.3	2 5.9	9.862 2144	9.798 7859	9.793 3986
28	327 3 2.5	1 35 0.8	1 50.3	3 12 47.8	1 48.5	9.862 1715	9.787 9525	9.782 4470
30	330 13 6.1	1 35 2.8	+ 1 33.8	− 3 16 7.2	− 1 30.8	9.862 1198	9.776 8818	9.771 2565
Oct. 2	333 23 13.8	1 35 4.9	+ 1 16.2	− 3 18 50.7	− 1 12.7	9.862 0596	9.765 5707	9.759 8241

VENUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Oct. 2	333 23 13.8	1 35 4.9	+1 16.2	−3 18 50.7	−1 12.7	9.862 0596	9.765 5707	9.759 8241
4	336 33 25.8	1 35 7.1	0 57.6	3 20 57.9	0 54.4	9.861 9910	9.754 0162	9.748 1467
6	339 43 42.3	1 35 9.4	0 38.3	3 22 28.2	0 35.9	9.861 9141	9.742 2153	9.736 2219
8	342 54 3.5	1 35 11.8	+0 18.5	3 23 21.5	−0 17.3	9.861 8293	9.730 1650	9.724 0472
10	346 4 29.6	1 35 14.3	−0 1.5	3 23 37.5	+0 1.3	9.861 7367	9.717 8656	9.711 6212
12	349 15 0.8	1 35 16.9	−0 21.5	−3 23 16.0	+0 20.1	9.861 6367	9.705 3139	9.698 9436
14	352 25 37.2	1 35 19.5	0 41.2	3 22 17.1	0 38.7	9.861 5296	9.692 5107	9.686 0152
16	355 36 18.9	1 35 22.2	1 0.5	3 20 41.0	0 57.3	9.861 4156	9.679 4577	9.672 8384
18	358 47 6.0	1 35 24.9	1 19.0	3 18 27.8	1 15.8	9.861 2951	9.666 1581	9.659 4181
20	1 57 58.7	1 35 27.7	1 36.5	3 15 38.0	1 34.0	9.861 1685	9.652 6195	9.645 7639
22	5 8 57.0	1 35 30.6	−1 52.9	−3 12 11.9	+1 52.0	9.861 0362	9.638 8534	9.631 8908
24	8 20 1.1	1 35 33.5	2 7.9	3 8 10.1	2 9.7	9.860 8985	9.624 8788	9.617 8209
26	11 31 11.0	1 35 36.4	2 21.3	3 3 33.4	2 27.0	9.860 7558	9.610 7212	9.603 5845
28	14 42 26.9	1 35 39.4	2 33.0	2 58 22.4	2 43.9	9.860 6087	9.596 4161	9.589 2222
30	17 53 48.7	1 35 42.4	2 42.8	2 52 38.2	3 0.2	9.860 4576	9.582 0088	9.574 7821
Nov. 1	21 5 16.6	1 35 45.4	−2 50.6	−2 46 21.7	+3 16.1	9.860 3028	9.567 5511	9.560 3248
3	24 16 50.6	1 35 48.5	2 56.2	2 39 34.0	3 31.4	9.860 1450	9.553 1125	9.545 9240
5	27 28 30.9	1 35 51.7	2 59.7	2 32 16.2	3 46.1	9.859 9845	9.538 7708	9.531 6654
7	30 40 17.6	1 35 54.9	3 1.0	2 24 29.7	4 0.1	9.859 8220	9.524 6211	9.517 6525
9	33 52 10.7	1 35 58.1	3 0.0	2 16 16.0	4 13.4	9.859 6578	9.510 7751	9.504 0057
11	37 4 10.2	1 36 1.4	−2 56.8	−2 7 36.4	+4 26.0	9.859 4925	9.497 3615	9.490 8608
13	40 16 16.4	1 36 4.7	2 51.3	1 58 32.5	4 37.7	9.859 3266	9.484 5233	9.478 3695
15	43 28 29.2	1 36 8.1	2 43.8	1 49 6.0	4 48.5	9.859 1607	9.472 4212	9.466 7010
17	46 40 48.8	1 36 11.5	2 34.1	1 39 18.6	4 58.6	9.858 9953	9.461 2319	9.456 0375
19	49 53 15.3	1 36 14.9	2 22.5	1 29 12.1	5 7.7	9.858 8309	9.451 1422	9.446 5702
21	53 5 48.7	1 36 18.4	−2 9.2	−1 18 48.3	+5 15.8	9.858 6679	9.442 3455	9.438 4915
23	56 18 29.1	1 36 21.9	1 54.2	1 8 9.3	5 23.0	9.858 5070	9.435 0316	9.431 9877
25	59 31 16.5	1 36 25.5	1 37.7	0 57 16.9	5 29.1	9.858 3486	9.429 3775	9.427 2171
27	62 44 11.1	1 36 29.1	1 20.0	0 46 13.3	5 34.3	9.858 1933	9.425 5219	9.424 3049
29	65 57 12.9	1 36 32.7	1 1.3	0 35 0.4	5 38.3	9.858 0416	9.423 5749	9.423 3382
Dec. 1	69 10 21.9	1 36 36.3	−0 41.8	−0 23 40.5	+5 41.3	9.857 8939	9.423 5950	9.424 3418
3	72 23 38.1	1 36 39.9	0 21.8	0 12 15.6	5 43.3	9.857 7507	9.425 5746	9.427 2861
5	75 37 1.6	1 36 43.5	−0 1.4	−0 0 47.9	5 44.2	9.857 6124	9.429 4641	9.432 0937
7	78 50 32.4	1 36 47.1	+0 18.9	+0 10 40.3	5 43.9	9.857 4796	9.435 1579	9.438 6373
9	82 4 10.3	1 36 50.7	0 39.1	0 22 6.9	5 42.5	9.857 3527	9.442 5108	9.446 7559
11	85 17 55.3	1 36 54.2	+0 58.7	+0 33 29.7	+5 40.1	9.857 2320	9.451 3487	9.456 2648
13	88 31 47.3	1 36 57.7	1 17.6	0 44 46.5	5 36.5	9.857 1180	9.461 4798	9.466 9691
15	91 45 46.3	1 37 1.2	1 35.6	0 55 55.1	5 31.9	9.857 0110	9.472 7090	9.478 6753
17	94 59 52.0	1 37 4.5	1 52.3	1 6 53.3	5 26.2	9.856 9114	9.484 8460	9.491 1997
19	98 14 4.3	1 37 7.7	2 7.6	1 17 39.0	5 19.4	9.856 8195	9.497 7154	9.504 3730
21	101 28 22.9	1 37 10.8	+2 21.2	+1 28 10.1	+5 11.5	9.856 7356	9.511 1545	9.518 0427
23	104 42 47.6	1 37 13.8	2 33.1	1 38 24.5	5 2.7	9.856 6599	9.525 0210	9.532 0735
25	107 57 18.1	1 37 16.6	2 43.1	1 48 20.2	4 52.8	9.856 5928	9.539 1860	9.546 3452
27	111 11 54.0	1 37 19.2	2 50.9	1 57 55.3	4 42.1	9.856 5344	9.553 5387	9.560 7552
29	114 26 35.0	1 37 21.7	2 56.5	2 7 7.9	4 30.4	9.856 4850	9.567 9843	9.575 2166
31	117 41 20.7	1 37 24.0	+2 59.9	+2 15 56.2	+4 17.7	9.856 4446	9.582 4430	9.589 6556
33	120 56 10.6	1 37 25.9	+3 1.0	+2 24 18.4	+4 4.5	9.856 4135	9.596 8477	. . .

MARS.

GREENWICH MEAN NOON.

Date.		Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
								At Date.	At Intermediate Date.
		° ′ ″	′ ″	″	° ′ ″	′ ″			
Jan.	1	8 8 57.4	36 58.75	− 53.2	− 1 12 23.7	+ 0 54.35	0.146 7169	0.240 7787	0.242 3128
	3	9 22 50.2	36 54.05	52.8	1 10 34.2	0 55.18	0.147 1738	0.243 8422	0.245 3671
	5	10 36 33.5	36 49.22	52.3	1 8 43.0	0 56.00	0.147 6443	0.246 8874	0.248 4033
	7	11 50 7.0	36 44.27	51.7	1 6 50.1	0 56.85	0.148 1283	0.249 9148	0.251 4219
	9	13 3 30.5	36 39.19	51.0	1 4 55.6	0 57.60	0.148 6253	0.252 9247	0.254 4230
	11	14 16 43.6	36 33.97	− 50.3	− 1 2 59.6	+ 0 58.35	0.149 1351	0.255 9171	0.257 4070
	13	15 29 46.3	36 28.67	49.4	1 1 2.2	0 59.05	0.149 6574	0.258 8926	0.260 3739
	15	16 42 38.2	36 23.21	48.4	0 59 3.4	0 59.70	0.150 1919	0.261 8509	0.263 3238
	17	17 55 19.1	36 17.69	47.4	0 57 3.4	1 0.33	0.150 7385	0.264 7925	0.266 2567
	19	19 7 48.9	36 12.09	46.3	0 55 2.–	1 0.90	0.151 2962	0.267 7164	0.269 1716
	21	20 20 7.4	36 6.36	− 45.1	− 0 52 59.7	+ 1 1.47	0.151 8653	0.270 6221	0.272 0676
	23	21 32 14.3	36 0.54	43.8	0 50 56.2	1 2.03	0.152 4454	0.273 5081	0.274 9438
	25	22 44 9.5	35 54.64	42.5	0 48 51.6	1 2.52	0.153 0359	0.276 3744	0.277 7995
	27	23 55 52.8	35 48.67	41.1	0 46 46.2	1 2.95	0.153 6367	0.279 2194	0.280 6342
	29	25 7 24.1	35 42.58	39.6	0 44 39.9	1 3.37	0.154 2474	0.282 0436	0.283 4475
	31	26 18 43.1	35 36.43	− 38.1	− 0 42 32.8	+ 1 3.75	0.154 8677	0.284 8460	0.286 2394
Feb.	2	27 29 49.8	35 30.23	36.5	0 40 24.9	1 4.10	0.155 4972	0.287 6273	0.289 0098
	4	28 40 44.0	35 23.96	34.8	0 38 16.4	1 4.40	0.156 1356	0.290 3869	0.291 7587
	6	29 51 25.6	35 17.61	33.1	0 36 7.3	1 4.70	0.156 7825	0.293 1251	0.294 4863
	8	31 1 54.4	35 11.18	31.3	0 33 57.7	1 4.97	0.157 4377	0.295 8422	0.297 1929
	10	32 12 10.3	35 4.73	− 29.5	− 0 31 47.6	+ 1 5.17	0.158 1007	0.298 5384	0.299 8788
	12	33 22 13.3	34 58.26	27.6	0 29 37.1	1 5.34	0.158 7712	0.301 2139	0.302 5438
	14	34 32 3.3	34 51.71	25.7	0 27 26.3	1 5.47	0.159 4490	0.303 8684	0.305 1877
	16	35 41 40.1	34 45.07	23.8	0 25 15.3	1 5.55	0.160 1336	0.306 5016	0.307 8101
	18	36 51 3.5	34 38.42	21.8	0 23 4.0	1 5.63	0.160 8247	0.309 1130	0.310 4099
	20	38 0 13.7	34 31.76	− 19.8	− 0 20 52.6	+ 1 5.72	0.161 5220	0.311 7010	0.312 9862
	22	39 9 10.5	34 25.06	17.8	0 18 41.1	1 5.75	0.162 2251	0.314 2655	0.315 5387
	24	40 17 53.9	34 18.28	15.8	0 16 29.6	1 5.75	0.162 9337	0.316 8057	0.318 0663
	26	41 26 23.7	34 11.50	13.7	0 14 18.1	1 5.72	0.163 6474	0.319 3205	0.320 5685
	28	42 34 40.0	34 4.76	11.7	0 12 6.7	1 5.67	0.164 3661	0.321 8101	0.323 0454
Mar.	2	43 42 42.7	33 57.96	− 9.6	− 0 9 55.4	+ 1 5.57	0.165 0893	0.324 2743	0.325 4966
	4	44 50 31.8	33 51.12	7.5	0 7 44.4	1 5.43	0.165 8166	0.326 7126	0.327 9223
	6	45 58 7.2	33 44.30	5.4	0 5 33.7	1 5.30	0.166 5478	0.329 1257	0.330 3225
	8	47 5 29.0	33 37.47	3.3	0 3 23.2	1 5.15	0.167 2826	0.331 5129	0.332 6972
	10	48 12 37.1	33 30.63	− 1.2	− 0 1 13.1	1 4.95	0.168 0206	0.333 8752	0.335 0470
	12	49 19 31.4	33 23.79	+ 0.9	+ 0 0 56.6	+ 1 4.72	0.168 7615	0.336 2126	0.337 3719
	14	50 26 12.1	33 16.95	3.0	0 3 5.8	1 4.48	0.169 5050	0.338 5250	0.339 6718
	16	51 32 39.2	33 10.10	5.1	0 5 14.5	1 4.22	0.170 2508	0.340 8122	0.341 9461
	18	52 38 52.5	33 3.27	7.1	0 7 22.7	1 3.97	0.170 9986	0.343 0734	0.344 1942
	20	53 44 52.2	32 56.45	9.2	0 9 30.2	1 3.64	0.171 7481	0.345 3083	0.346 4154
	22	54 50 38.3	32 49.62	+ 11.2	+ 0 11 37.1	+ 1 3.27	0.172 4990	0.347 5155	0.348 6087
	24	55 56 10.7	32 42.80	13.2	0 13 43.3	1 2.90	0.173 2510	0.349 6949	0.350 7739
	26	57 1 29.5	32 36.02	15.2	0 15 48.8	1 2.55	0.174 0038	0.351 8457	0.352 9102
	28	58 6 34.8	32 29.27	17.1	0 17 53.5	1 2.15	0.174 7572	0.353 9675	0.355 0176
	30	59 11 26.6	32 22.55	19.0	0 19 57.4	1 1.77	0.175 5109	0.356 0604	0.357 0957
Apr.	1	60 16 5.0	32 15.83	+ 20.9	+ 0 22 0.4	+ 1 1.30	0.176 2645	0.358 1237	0.359 1445
	3	61 20 29.9	32 9.12	+ 22.8	+ 0 24 2.6	+ 1 0.85	0.177 0178	0.360 1579	0.361 1639

MARS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
	° ′ ″	′ ″	″	° ′ ″	′ ″			
Apr. 1	60 16 5.0	32 15.83	+ 20.9	+ 0 22 0.4	+ 1 1.30	0.176 2645	0.358 1237	0.359 1445
3	61 20 29.9	32 9.12	22.8	0 24 2.6	1 0.85	0.177 0178	0.360 1579	0.361 1639
5	62 24 41.5	32 2.47	24.6	0 26 3.8	1 0.37	0.177 7706	0.362 1626	0.363 1543
7	63 28 39.8	31 55.85	26.3	0 28 4.0	0 59.85	0.178 5225	0.364 1387	0.365 1160
9	64 32 24.9	31 49.23	28.0	0 30 3.2	0 59.35	0.179 2734	0.366 0861	0.367 0493
11	65 35 56.8	31 42.68	+ 29.7	+ 0 32 1.4	+ 0 58.85	0.180 0229	0.368 0053	0.368 9541
13	66 39 15.7	31 36.20	31.3	0 33 58.6	0 58.30	0.180 7708	0.369 8956	0.370 8299
15	67 42 21.6	31 29.69	32.9	0 35 54.7	0 57.75	0.181 5169	0.371 7569	0.372 6764
17	68 45 14.5	31 23.23	34.5	0 37 49.7	0 57.20	0.182 2610	0.373 5885	0.374 4930
19	69 47 54.6	31 16.85	36.0	0 39 43.5	0 56.60	0.183 0027	0.375 3898	0.376 2791
21	70 50 22.0	31 10.50	+ 37.4	+ 0 41 36.1	+ 0 56.00	0.183 7419	0.377 1605	0.378 0339
23	71 52 36.7	31 4.18	38.8	0 43 27.5	0 55.40	0.184 4783	0.378 8995	0.379 7572
25	72 54 38.8	30 57.93	40.1	0 45 17.7	0 54.80	0.185 2118	0.380 6067	0.381 4480
27	73 56 28.5	30 51.74	41.3	0 47 6.7	0 54.15	0.185 9420	0.382 2813	0.383 1068
29	74 58 5.8	30 45.56	42.5	0 48 54.3	0 53.50	0.186 6688	0.383 9243	0.384 7336
May 1	75 59 30.8	30 39.43	+ 43.7	+ 0 50 40.7	+ 0 52.87	0.187 3920	0.385 5347	0.386 3278
3	77 0 43.6	30 33.38	44.8	0 52 25.8	0 52.20	0.188 1113	0.387 1128	0.387 8899
5	78 1 44.4	30 27.41	45.8	0 54 9.5	0 51.52	0.188 8266	0.388 6590	0.389 4201
7	79 2 33.3	30 21.46	46.8	0 55 51.9	0 50.82	0.189 5376	0.390 1734	0.390 9190
9	80 3 10.3	30 15.55	47.7	0 57 32.8	0 50.12	0.190 2442	0.391 6567	0.392 3865
11	81 3 35.6	30 9.73	+ 48.5	+ 0 59 12.4	+ 0 49.45	0.190 9462	0.393 1083	0.393 8221
13	82 3 49.3	30 3.95	49.3	1 0 50.6	0 48.75	0.191 6434	0.394 5280	0.395 2261
15	83 3 51.5	29 58.26	50.0	1 2 27.4	0 48.02	0.192 3356	0.395 9160	0.396 5978
17	84 3 42.4	29 52.61	50.7	1 4 2.7	0 47.27	0.193 0226	0.397 2713	0.397 9365
19	85 3 22.0	29 47.00	51.3	1 5 36.5	0 46.55	0.193 7043	0.398 5932	0.399 2412
21	86 2 50.5	29 41.48	+ 51.8	+ 1 7 8.9	+ 0 45.85	0.194 3805	0.399 8807	0.400 5116
23	87 2 8.0	29 36.03	52.3	1 8 39.8	0 45.07	0.195 0511	0.401 1340	0.401 7477
25	88 1 14.7	29 30.63	52.7	1 10 9.2	0 44.30	0.195 7158	0.402 3527	0.402 9490
27	89 0 10.6	29 25.27	53.0	1 11 37.0	0 43.55	0.196 3745	0.403 5366	0.404 1154
29	89 58 55.9	29 20.03	53.3	1 13 3.4	0 42.80	0.197 0271	0.404 6854	0.405 2468
31	90 57 30.8	29 14.83	+ 53.5	+ 1 14 28.2	+ 0 42.05	0.197 6735	0.405 7996	0.406 3436
June 2	91 55 55.3	29 9.70	53.7	1 15 51.6	0 41.27	0.198 3134	0.406 8790	0.407 4058
4	92 54 9.6	29 4.65	53.8	1 17 13.3	0 40.45	0.198 9467	0.407 9239	0.408 4337
6	93 52 13.9	28 59.65	53.8	1 18 33.4	0 39.68	0.199 5733	0.408 9349	0.409 4278
8	94 50 8.2	28 54.70	53.8	1 19 52.0	0 38.92	0.200 1931	0.409 9122	0.410 3878
10	95 47 52.7	28 49.85	+ 53.7	+ 1 21 9.1	+ 0 38.12	0.200 8059	0.410 8547	0.411 3132
12	96 45 27.6	28 45.07	53.5	1 22 24.5	0 37.32	0.201 4116	0.411 7630	0.412 2039
14	97 42 53.0	28 40.35	53.3	1 23 38.4	0 36.52	0.202 0101	0.412 6360	0.413 0590
16	98 40 9.0	28 35.70	53.0	1 24 50.6	0 35.72	0.202 6012	0.413 4731	0.413 8783
18	99 37 15.8	28 31.12	52.7	1 26 1.3	0 34.90	0.203 1849	0.414 2743	0.414 6610
20	100 34 13.5	28 26.62	+ 52.3	+ 1 27 10.3	+ 0 34.12	0.203 7610	0.415 0384	0.415 4066
22	101 31 2.3	28 22.20	51.9	1 28 17.8	0 33.32	0.204 3294	0.415 7656	0.416 1152
24	102 27 42.3	28 17.82	51.4	1 29 23.6	0 32.50	0.204 8901	0.416 4554	0.416 7861
26	103 24 13.6	28 13.50	50.8	1 30 27.8	0 31.68	0.205 4428	0.417 1074	0.417 4193
28	104 20 36.4	28 9.30	50.2	1 31 30.4	0 30.85	0.205 9875	0.417 7220	0.418 0153
30	105 16 50.8	28 5.15	+ 49.5	+ 1 32 31.3	+ 0 30.05	0.206 5242	0.418 2993	0.418 5738
July 2	106 12 57.0	28 1.10	+ 48.8	+ 1 33 30.6	+ 0 29.25	0.207 0526	0.418 8391	0.419 0952

MARS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	′ ″	″	° ′ ″	′ ″			
July 2	106 12 57.0	28 1.10	+ 48.8	+ 1 33 30.6	+ 0 29.25	0.207 0526	0.418 8391	0.419 0952
4	107 8 55.2	27 57.10	48.1	1 34 28.3	0 28.45	0.207 5728	0.419 3422	0.419 5800
6	108 4 45.4	27 53.17	47.3	1 35 24.4	0 27.62	0.208 0846	0.419 8086	0.420 0279
8	109 0 27.9	27 49.33	46.4	1 36 18.8	0 26.80	0.208 5879	0.420 2379	0.420 4386
10	109 56 2.7	27 45.55	45.5	1 37 11.6	0 26.00	0.209 0826	0.420 6300	0.420 8121
12	110 51 30.1	27 41.85	+ 44.6	+ 1 38 2.8	+ 0 25.17	0.209 5687	0.420 9846	0.421 1472
14	111 46 50.1	27 38.20	43.6	1 38 52.3	0 24.32	0.210 0461	0.421 3002	0.421 4437
16	112 42 2.9	27 34.65	42.5	1 39 40.1	0 23.52	0.210 5148	0.421 5774	0.421 7012
18	113 37 8.7	27 31.15	41.4	1 40 26.4	0 22.72	0.210 9745	0.421 8150	0.421 9188
20	114 32 7.6	27 27.75	40.3	1 41 11.0	0 21.87	0.211 4253	0.422 0125	0.422 0960
22	115 26 59.8	27 24.45	+ 39.2	+ 1 41 53.9	+ 0 21.07	0.211 8671	0.422 1694	0.422 2328
24	116 21 45.4	27 21.20	38.0	1 42 35.3	0 20.25	0.212 2998	0.422 2861	0.422 3294
26	117 16 24.6	27 18.02	36.8	1 43 14.9	0 19.40	0.212 7233	0.422 3625	0.422 3850
28	118 10 57.5	27 14.90	35.5	1 43 52.9	0 18.60	0.213 1377	0.422 3973	0.422 3998
30	119 5 24.2	27 11.87	34.2	1 44 29.5	0 17.80	0.213 5427	0.422 3922	0.422 3745
Aug. 1	119 59 45.0	27 8.92	+ 32.9	+ 1 45 4.1	+ 0 17.00	0.213 9385	0.422 3467	0.422 3090
3	120 53 59.9	27 6.02	31.5	1 45 37.3	0 16.17	0.214 3248	0.422 2612	0.422 2035
5	121 48 9.1	27 3.22	30.1	1 46 8.8	0 15.35	0.214 7018	0.422 1357	0.422 0576
7	122 42 12.8	27 0.50	28.7	1 46 38.7	0 14.50	0.215 0692	0.421 9694	0.421 8711
9	123 36 11.1	26 57.82	27.3	1 47 6.9	0 13.72	0.215 4270	0.421 7625	0.421 6433
11	124 30 4.1	26 55.25	+ 25.8	+ 1 47 33.6	+ 0 12.92	0.215 7753	0.421 5137	0.421 3735
13	125 23 52.1	26 52.75	24.3	1 47 58.6	0 12.07	0.216 1139	0.421 2227	0.421 0612
15	126 17 35.1	26 50.32	22.8	1 48 21.9	0 11.27	0.216 4428	0.420 8889	0.420 7056
17	127 11 13.1	26 47.97	21.3	1 48 43.7	0 10.50	0.216 7620	0.420 5114	0.420 3063
19	128 4 47.0	26 45.67	19.7	1 49 3.9	0 9.67	0.217 0715	0.420 0901	0.419 8627
21	128 58 16.1	26 43.47	+ 18.1	+ 1 49 22.4	+ 0 8.85	0.217 3710	0.419 6243	0.419 3749
23	129 51 40.9	26 41.35	16.6	1 49 39.4	0 8.07	0.217 6607	0.419 1145	0.418 8427
25	130 45 1.5	26 39.30	15.0	1 49 54.7	0 7.25	0.217 9405	0.418 5597	0.418 2657
27	131 38 18.1	26 37.30	13.4	1 50 8.4	0 6.45	0.218 2104	0.417 9607	0.417 6448
29	132 31 30.7	26 35.38	11.8	1 50 20.5	0 5.65	0.218 4703	0.417 3175	0.416 9793
31	133 24 39.6	26 33.57	+ 10.1	+ 1 50 31.0	+ 0 4.87	0.218 7202	0.416 6300	0.416 2696
Sept. 2	134 17 45.0	26 31.82	8.5	1 50 40.0	0 4.05	0.218 9601	0.415 8982	0.415 5157
4	135 10 46.9	26 30.12	6.9	1 50 47.3	0 3.27	0.219 1899	0.415 1221	0.414 7172
6	136 3 45.5	26 28.52	5.2	1 50 53.1	0 2.45	0.219 4097	0.414 3010	0.413 8733
8	136 56 41.0	26 27.00	3.6	1 50 57.2	0 1.67	0.219 6193	0.413 4342	0.412 9834
10	137 49 33.5	26 25.55	+ 1.9	+ 1 50 59.8	+ 0 0.92	0.219 8187	0.412 5210	0.412 0468
12	138 42 23.2	26 24.17	+ 0.2	1 51 0.9	+ 0 0.12	0.220 0080	0.411 5607	0.411 0628
14	139 35 10.2	26 22.85	− 1.4	1 51 0.3	− 0 0.67	0.220 1871	0.410 5530	0.410 0310
16	140 27 54.6	26 21.60	3.0	1 50 58.2	0 1.45	0.220 3560	0.409 4969	0.408 9504
18	141 20 36.6	26 20.45	4.7	1 50 54.5	0 2.22	0.220 5146	0.408 3917	0.407 8207
20	142 13 16.4	26 19.37	− 6.3	+ 1 50 49.3	− 0 3.00	0.220 6630	0.407 2375	0.406 6420
22	143 5 54.1	26 18.35	7.9	1 50 42.5	0 3.77	0.220 8011	0.406 0341	0.405 4139
24	143 58 29.8	26 17.42	9.6	1 50 34.2	0 4.55	0.220 9289	0.404 7814	0.404 1366
26	144 51 3.8	26 16.57	11.2	1 50 24.2	0 5.35	0.221 0465	0.403 4799	0.402 8106
28	145 43 36.1	26 15.77	12.8	1 50 12.8	0 6.10	0.221 1537	0.402 1291	0.401 4353
30	146 36 6.9	26 15.07	− 14.4	+ 1 49 59.9	− 0 6.87	0.221 2506	0.400 7293	0.400 0110
Oct. 2	147 28 36.4	26 14.45	− 16.0	+ 1 49 45.3	− 0 7.65	0.221 3371	0.399 2803	0.398 5371

MARS.

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	° ′ ″	′ ″	″	° ′ ″	′ ″			
Oct. 2	147 28 36.4	26 14.45	−16.0	+1 49 45.3	−0 7.65	0.221 3371	0.399 2803	0.398 5371
4	148 21 4.7	26 13.87	17.5	1 49 29.3	0 8.38	0.221 4133	0.397 7813	0.397 0128
6	149 13 31.9	26 13.37	19.1	1 49 11.8	0 9.15	0.221 4791	0.396 2317	0.395 4378
8	150 5 58.3	26 12.97	20.6	1 48 52.7	0 9.92	0.221 5346	0.394 6310	0.393 8112
10	150 58 23.8	26 12.65	22.1	1 48 32.1	0 10.65	0.221 5797	0.392 9783	0.392 1322
12	151 50 48.8	26 12.40	−23.6	+1 48 10.1	−0 11.40	0.221 6144	0.391 2729	0.390 4002
14	152 43 13.4	26 12.20	25.0	1 47 46.5	0 12.17	0.221 6387	0.389 5140	0.388 6143
16	153 35 37.6	26 12.07	26.5	1 47 21.4	0 12.92	0.221 6527	0.387 7011	0.386 7741
18	154 28 1.7	26 12.05	27.9	1 46 54.8	0 13.67	0.221 6562	0.385 8335	0.384 8791
20	155 20 25.8	26 12.07	29.3	1 46 26.7	0 14.42	0.221 6494	0.383 9110	0.382 9293
22	156 12 50.0	26 12.17	−30.6	+1 45 57.1	−0 15.15	0.221 6322	0.381 9339	0.380 9248
24	157 5 14.5	26 12.37	32.0	1 45 26.1	0 15.87	0.221 6046	0.379 9021	0.378 8657
26	157 57 39.5	26 12.65	33.3	1 44 53.6	0 16.65	0.221 5666	0.377 8157	0.376 7520
28	158 50 5.1	26 12.97	34.6	1 44 19.6	0 17.37	0.221 5182	0.375 6746	0.374 5835
30	159 42 31.4	26 13.35	35.8	1 43 44.1	0 18.10	0.221 4595	0.373 4786	0.372 3601
Nov. 1	160 34 58.6	26 13.85	−37.0	+1 43 7.2	−0 18.80	0.221 3904	0.371 2276	0.370 0809
3	161 27 26.8	26 14.40	38.2	1 42 28.9	0 19.52	0.221 3109	0.368 9201	0.367 7451
5	162 19 56.2	26 15.05	39.3	1 41 49.1	0 20.27	0.221 2211	0.366 5558	0.365 3522
7	163 12 27.0	26 15.75	40.4	1 41 7.8	0 21.00	0.221 1210	0.364 1343	0.362 9015
9	164 4 59.2	26 16.52	41.5	1 40 25.1	0 21.70	0.221 0105	0.361 6541	0.360 3919
11	164 57 33.1	26 17.40	−42.5	+1 39 41.0	−0 22.40	0.220 8897	0.359 1149	0.357 8228
13	165 50 8.8	26 18.35	43.5	1 38 55.5	0 23.10	0.220 7586	0.356 5156	0.355 1931
15	166 42 46.5	26 19.35	44.5	1 38 8.6	0 23.82	0.220 6172	0.353 8553	0.352 5024
17	167 35 26.2	26 20.40	45.4	1 37 20.2	0 24.55	0.220 4655	0.351 1343	0.349 7509
19	168 28 8.1	26 21.55	46.2	1 36 30.4	0 25.25	0.220 3036	0.348 3523	0.346 9385
21	169 20 52.4	26 22.80	−47.0	+1 35 39.2	−0 25.92	0.220 1315	0.345 5095	0.344 0653
23	170 13 39.3	26 24.12	47.8	1 34 46.7	0 26.62	0.219 9491	0.342 6059	0.341 1313
25	171 6 28.9	26 25.52	48.5	1 33 52.7	0 27.32	0.219 7566	0.339 6415	0.338 1364
27	171 59 21.4	26 26.97	49.2	1 32 57.4	0 28.00	0.219 5538	0.336 6161	0.335 0804
29	172 52 16.8	26 28.48	49.9	1 32 0.7	0 28.70	0.219 3410	0.333 5292	0.331 9625
Dec. 1	173 45 15.3	26 30.10	−50.5	+1 31 2.6	−0 29.35	0.219 1180	0.330 3801	0.328 7821
3	174 38 17.2	26 31.80	51.0	1 30 3.2	0 30.02	0.218 8849	0.327 1683	0.325 5386
5	175 31 22.5	26 33.55	51.5	1 29 2.4	0 30.75	0.218 6418	0.323 8928	0.322 2309
7	176 24 31.4	26 35.37	52.0	1 28 0.2	0 31.40	0.218 3886	0.320 5528	0.318 8582
9	177 17 44.0	26 37.27	52.4	1 26 56.8	0 32.05	0.218 1235	0.317 1472	0.315 4196
11	178 11 0.5	26 39.27	−52.7	+1 25 52.0	−0 32.72	0.217 8523	0.313 6752	0.311 9139
13	179 4 21.1	26 41.32	53.0	1 24 45.9	0 33.40	0.217 5693	0.310 1357	0.308 3408
15	179 57 45.8	26 43.45	53.3	1 23 38.4	0 34.05	0.217 2763	0.306 5292	0.304 7004
17	180 51 14.9	26 45.67	53.5	1 22 29.7	0 34.67	0.216 9735	0.302 8546	0.300 9920
19	181 44 48.5	26 47.97	53.6	1 21 19.7	0 35.35	0.216 6608	0.299 1125	0.297 2161
21	182 38 26.8	26 50.35	−53.7	+1 20 8.3	−0 36.00	0.216 3384	0.295 3029	0.293 3729
23	183 32 9.9	26 52.77	53.8	1 18 55.7	0 36.62	0.216 0062	0.291 4260	0.289 4621
25	184 25 57.9	26 55.27	53.8	1 17 41.8	0 37.25	0.215 6644	0.287 4814	0.285 4835
27	185 19 51.0	26 57.87	53.7	1 16 26.7	0 37.87	0.215 3129	0.283 4687	0.281 4367
29	186 13 49.4	27 0.55	53.6	1 15 10.3	0 38.50	0.214 9518	0.279 3874	0.277 3209
31	187 7 53.2	27 3.30	−53.4	+1 13 52.7	−0 39.10	0.214 5811	0.275 2370	0.273 1355
33	188 2 2.6	27 6.10	−53.2	+1 12 33.8	−0 39.75	0.214 2010	0.271 0162	. . . . .

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GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	′ ″	″	° ′ ″	″			
Jan. 3	64 58 39.9	5 18.19	− 25.1	− 0 44 29.9	+ 5.99	0.702 6352	0.633 5978	0.635 9799
7	65 19 52.3	5 18.04	25.0	0 44 5.9	6.01	0.702 7349	0.638 4282	0.640 9376
11	65 41 4.2	5 17.90	24.9	0 43 41.8	6.03	0.702 8350	0.643 5035	0.646 1212
15	66 2 15.5	5 17.75	24.8	0 43 17.6	6.06	0.702 9355	0.648 7861	0.651 4938
19	66 23 26.2	5 17.60	24.6	0 42 53.4	6.08	0.703 0364	0.654 2397	0.657 0196
23	66 44 36.3	5 17.45	− 24.4	− 0 42 29.1	+ 6.10	0.703 1378	0.659 8287	0.662 6625
27	67 5 45.8	5 17.30	24.3	0 42 4.6	6.12	0.703 2396	0.665 5166	0.668 3863
31	67 26 54.7	5 17.15	24.1	0 41 40.0	6.14	0.703 3418	0.671 2678	0.674 1568
Feb. 4	67 48 3.0	5 17.00	24.0	0 41 15.4	6.16	0.703 4445	0.677 0498	0.679 9431
8	68 9 10.7	5 16.85	23.9	0 40 50.7	6.18	0.703 5476	0.682 8336	0.685 7179
12	68 30 17.8	5 16.70	− 23.7	− 0 40 25.9	+ 6.20	0.703 6511	0.688 5934	0.691 4572
16	68 51 24.2	5 16.55	23.6	0 40 1.1	6.22	0.703 7550	0.694 3070	0.697 1395
20	69 12 30.1	5 16.40	23.4	0 39 36.2	6.24	0.703 8593	0.699 9523	0.702 7427
24	69 33 35.4	5 16.24	23.3	0 39 11.2	6.26	0.703 9640	0.705 5082	0.708 2459
28	69 54 40.0	5 16.08	23.1	0 38 46.1	6.28	0.704 0690	0.710 9540	0.713 6306
Mar. 4	70 15 44.0	5 15.93	− 23.0	− 0 38 20.9	+ 6.30	0.704 1744	0.716 2738	0.718 8813
8	70 36 47.4	5 15.78	22.8	0 37 55.7	6.32	0.704 2802	0.721 4519	0.723 9841
12	70 57 50.2	5 15.62	22.6	0 37 30.4	6.34	0.704 3864	0.726 4769	0.728 9290
16	71 18 52.4	5 15.47	22.4	0 37 5.0	6.36	0.704 4930	0.731 3393	0.733 7066
20	71 39 53.9	5 15.31	22.2	0 36 39.6	6.37	0.704 5999	0.736 0297	0.738 3073
24	72 0 54.8	5 15.16	− 22.0	− 0 36 14.1	+ 6.39	0.704 7071	0.740 5383	0.742 7213
28	72 21 55.1	5 15.00	21.8	0 35 48.5	6.41	0.704 8147	0.744 8556	0.746 9403
Apr. 1	72 42 54.8	5 14.84	21.6	0 35 22.8	6.43	0.704 9227	0.748 9748	0.750 9581
5	73 3 53.8	5 14.68	21.4	0 34 57.1	6.45	0.705 0312	0.752 8899	0.754 7698
9	73 24 52.2	5 14.52	21.3	0 34 31.3	6.46	0.705 1401	0.756 5975	0.758 3727
13	73 45 50.0	5 14.36	− 21.1	− 0 34 5.4	+ 6.48	0.705 2493	0.760 0952	0.761 7647
17	74 6 47.1	5 14.20	20.9	0 33 39.5	6.49	0.705 3588	0.763 3804	0.764 9415
21	74 27 43.7	5 14.04	20.7	0 33 13.6	6.51	0.705 4686	0.766 4478	0.767 8990
25	74 48 39.5	5 13.88	20.5	0 32 47.5	6.52	0.705 5786	0.769 2948	0.770 6346
29	75 9 34.7	5 13.72	20.2	0 32 21.4	6.53	0.705 6889	0.771 9183	0.773 1457
May 3	75 30 29.3	5 13.56	− 20.0	− 0 31 55.2	+ 6.55	0.705 7997	0.774 3169	0.775 4319
7	75 51 23.2	5 13.40	19.8	0 31 29.0	6.56	0.705 9108	0.776 4908	0.777 4937
11	76 12 16.5	5 13.24	19.5	0 31 2.8	6.58	0.706 0222	0.778 4405	0.779 3311
15	76 33 9.1	5 13.08	19.3	0 30 36.5	6.59	0.706 1338	0.780 1654	0.780 9433
19	76 54 1.1	5 12.92	19.1	0 30 10.1	6.60	0.706 2457	0.781 6643	0.782 3280
23	77 14 52.4	5 12.76	− 18.9	− 0 29 43.6	+ 6.62	0.706 3579	0.782 9347	0.783 4843
27	77 35 43.1	5 12.60	18.7	0 29 17.1	6.63	0.706 4704	0.783 9769	0.784 4122
31	77 56 33.2	5 12.43	18.4	0 28 50.6	6.65	0.706 5832	0.784 7906	0.785 1121
June 4	78 17 22.6	5 12.27	18.2	0 28 24.0	6.66	0.706 6963	0.785 3770	0.785 5854
8	78 38 11.3	5 12.10	17.9	0 27 57.4	6.67	0.706 8098	0.785 7376	0.785 8338
12	78 58 59.4	5 11.94	− 17.7	− 0 27 30.7	+ 6.69	0.706 9234	0.785 8737	0.785 8568
16	79 19 46.8	5 11.78	17.5	0 27 4.0	6.70	0.707 0373	0.785 7834	0.785 6534
20	79 40 33.6	5 11.61	17.2	0 26 37.2	6.71	0.707 1515	0.785 4668	0.785 2234
24	80 1 19.7	5 11.45	17.0	0 26 10.4	6.72	0.707 2660	0.784 9234	0.784 5669
28	80 22 5.1	5 11.28	16.7	0 25 43.6	6.73	0.707 3808	0.784 1542	0.783 6855
July 2	80 42 49.9	5 11.12	− 16.5	− 0 25 16.7	+ 6.74	0.707 4958	0.783 1611	0.782 5813
6	81 3 84.0	5 10.95	− 16.2	− 0 24 49.8	+ 6.75	0.707 6110	0.781 9464	0.781 2564

JUPITER.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	′ ″	″	° ′ ″	″			
July 2	80 42 49.9	5 11.12	− 16.5	− 0 25 16.7	+ 6.74	0.707 4958	0.783 1611	0.782 5813
6	81 3 34.0	5 10.95	16.2	0 24 49.8	6.75	0.707 6110	0.781 9464	0.781 2564
10	81 24 17.5	5 10.79	16.0	0 24 22.8	6.76	0.707 7264	0.780 5114	0.779 7113
14	81 45 0.3	5 10.62	15.7	0 23 55.8	6.76	0.707 8421	0.778 8560	0.777 9454
18	82 5 42.4	5 10.45	15.4	0 23 28.7	6.77	0.707 9580	0.776 9797	0.775 9590
22	82 26 23.9	5 10.28	− 15.2	− 0 23 1.6	+ 6.78	0.708 0742	0.774 8837	0.773 7539
26	82 47 4.7	5 10.12	14.9	0 22 34.5	6.79	0.708 1906	0.772 5700	0.771 3325
30	83 7 44.8	5 9.95	14.6	0 22 7.3	6.80	0.708 3072	0.770 0420	0.768 6990
Aug. 3	83 28 24.3	5 9.79	14.3	0 21 40.1	6.80	0.708 4240	0.767 3037	0.765 8564
7	83 49 3.1	5 9.62	14.0	0 21 12.9	6.81	0.708 5410	0.764 3573	0.762 8066
11	84 9 41.2	5 9.45	− 13.8	− 0 20 45.6	+ 6.82	0.708 6583	0.761 2046	0.759 5516
15	84 30 18.7	5 9.28	13.5	0 20 18.3	6.83	0.708 7758	0.757 8481	0.756 0943
19	84 50 55.5	5 9.11	13.2	0 19 51.0	6.84	0.708 8935	0.754 2909	0.752 4385
23	85 11 31.6	5 8.94	12.9	0 19 23.7	6.84	0.709 0113	0.750 5381	0.748 5904
27	85 32 7.0	5 8.77	12.6	0 18 56.3	6.85	0.709 1293	0.746 5966	0.744 5576
31	85 52 41.8	5 8.60	− 12.3	− 0 18 28.9	+ 6.85	0.709 2475	0.742 4742	0.740 3472
Sept. 4	86 13 15.9	5 8.44	12.0	0 18 1.5	6.86	0.709 3659	0.738 1776	0.735 9662
8	86 33 49.3	5 8.27	11.7	0 17 34.1	6.86	0.709 4845	0.733 7139	0.731 4215
12	86 54 22.1	5 8.11	11.4	0 17 6.6	6.87	0.709 6032	0.729 0903	0.726 7216
16	87 14 54.2	5 7.94	11.1	0 16 39.1	6.87	0.709 7221	0.724 3168	0.721 8773
20	87 35 25.6	5 7.77	− 10.9	− 0 16 11.6	+ 6.88	0.709 8412	0.719 4051	0.716 9023
24	87 55 56.3	5 7.60	10.6	0 15 44.0	6.88	0.709 9604	0.714 3708	0.711 8127
28	88 16 26.3	5 7.43	10.3	0 15 16.4	6.89	0.710 0798	0.709 2298	0.706 6238
Oct. 2	88 36 55.7	5 7.26	10.0	0 14 48.9	6.89	0.710 1993	0.703 9974	0.701 3533
6	88 57 24.4	5 7.09	9.7	0 14 21.4	6.90	0.710 3189	0.698 6932	0.696 0187
10	89 17 52.4	5 6.92	− 9.4	− 0 13 53.8	+ 6.90	0.710 4387	0.693 3330	0.690 6389
14	89 38 19.7	5 6.75	9.1	0 13 26.2	6.90	0.710 5587	0.687 9397	0.685 2380
18	89 58 46.4	5 6.58	8.8	0 12 58.5	6.91	0.710 6788	0.682 5380	0.679 8430
22	90 19 12.4	5 6.41	8.5	0 12 30.9	6.91	0.710 7990	0.677 1570	0.674 4837
26	90 39 37.7	5 6.24	8.2	0 12 3.2	6.91	0.710 9193	0.671 8269	0.669 1902
30	91 0 2.3	5 6.07	− 7.9	− 0 11 35.6	+ 6.91	0.711 0398	0.666 5776	0.663 9929
Nov. 3	91 20 26.3	5 5.90	7.6	0 11 7.9	6.91	0.711 1604	0.661 4404	0.658 9238
7	91 40 49.6	5 5.73	7.3	0 10 40.3	6.92	0.711 2811	0.656 4479	0.654 0169
11	92 1 12.2	5 5.56	7.0	0 10 12.6	6.92	0.711 4018	0.651 6359	0.649 3093
15	92 21 34.1	5 5.39	6.7	0 9 44.9	6.92	0.711 5226	0.647 0425	0.644 8405
19	92 41 55.3	5 5.22	− 6.4	− 0 9 17.2	+ 6.92	0.711 6435	0.642 7083	0.640 6511
23	93 2 15.9	5 5.05	6.1	0 8 49.5	6.92	0.711 7645	0.638 6731	0.636 7785
27	93 22 35.7	5 4.88	5.8	0 8 21.8	6.93	0.711 8856	0.634 9719	0.633 2577
Dec. 1	93 42 54.9	5 4.71	5.5	0 7 54.1	6.93	0.712 0068	0.631 6400	0.630 1230
5	94 3 13.4	5 4.54	5.1	0 7 26.3	6.93	0.712 1282	0.628 7105	0.627 4064
9	94 23 31.3	5 4.37	− 4.8	− 0 6 58.6	+ 6.93	0.712 2496	0.626 2144	0.625 1388
13	94 43 48.4	5 4.20	4.5	0 6 30.9	6.93	0.712 3711	0.624 1822	0.623 3481
17	95 4 4.9	5 4.03	4.2	0 6 3.2	6.93	0.712 4926	0.622 6388	0.622 0574
21	95 24 20.7	5 3.86	3.9	0 5 35.5	6.93	0.712 6141	0.621 6049	0.621 2829
25	95 44 35.8	5 3.69	3.5	0 5 7.8	6.92	0.712 7356	0.621 0919	0.621 0328
29	96 4 50.2	5 3.52	− 3.2	− 0 4 40.1	+ 6.92	0.712 8572	0.621 1052	0.621 3096
33	96 25 4.0	5 3.35	− 2.9	− 0 4 12.4	+ 6.92	0.712 9789	0.621 6449	. . . .

SATURN.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	′ ″	′ ″	° ′ ″	″			
Jan. 3	333 45 47.1	1 55.08	+ 1 36.7	− 1 37 50.4	− 3.78	0.989 4973	1.017 0806	1.018 0800
7	333 53 27.4	1 55.10	1 36.7	1 38 5.5	3.77	0.989 4481	1.019 0459	1.019 9774
11	334 1 7.9	1 55.13	1 36.7	1 38 20.5	3.77	0.989 3988	1.020 8742	1.021 7358
15	334 8 48.5	1 55.16	1 36.8	1 38 35.6	3.76	0.989 3495	1.022 5616	1.023 3508
19	334 16 29.2	1 55.18	1 36.8	1 38 50.6	3.75	0.989 3002	1.024 1029	1.024 8174
23	334 24 9.9	1 55.21	+ 1 36.9	− 1 39 5.6	− 3.74	0.989 2509	1.025 4936	1.026 1308
27	334 31 50.8	1 55.23	1 36.9	1 39 20.6	3.73	0.989 2015	1.026 7288	1.027 2872
31	334 39 31.8	1 55.26	1 36.9	1 39 35.5	3.73	0.989 1520	1.027 8057	1.028 2839
Feb. 4	334 47 13.0	1 55.29	1 37.0	1 39 50.4	3.73	0.989 1025	1.028 7218	1.029 1191
8	334 54 54.1	1 55.31	1 37.0	1 40 5.3	3.72	0.989 0529	1.029 4758	1.029 7918
12	335 2 35.4	1 55.34	+ 1 37.1	− 1 40 20.2	− 3.72	0.989 0033	1.030 0669	1.030 3009
16	335 10 16.8	1 55.36	1 37.2	1 40 35.1	3.71	0.988 9536	1.030 4937	1.030 6450
20	335 17 58.3	1 55.39	1 37.2	1 40 49.9	3.70	0.988 9038	1.030 7548	1.030 8228
24	335 25 39.9	1 55.42	1 37.3	1 41 4.7	3.70	0.988 8539	1.030 8491	1.030 8336
28	335 33 21.6	1 55.44	1 37.3	1 41 19.5	3.69	0.988 8040	1.030 7765	1.030 6778
Mar. 4	335 41 3.5	1 55.47	+ 1 37.4	− 1 41 34.2	− 3.68	0.988 7540	1.030 5378	1.030 3568
8	335 48 45.4	1 55.50	1 37.4	1 41 48.9	3.68	0.988 7039	1.030 1351	1.029 8728
12	335 56 27.4	1 55.52	1 37.4	1 42 3.6	3.67	0.988 6538	1.029 5701	1.029 2273
16	336 4 9.6	1 55.55	1 37.5	1 42 18.2	3.66	0.988 6036	1.028 8445	1.028 4218
20	336 11 51.8	1 55.57	1 37.5	1 42 32.8	3.65	0.988 5534	1.027 9594	1.027 4574
24	336 19 34.2	1 55.60	+ 1 37.5	− 1 42 47.4	− 3.64	0.988 5032	1.026 9162	1.026 3362
28	336 27 16.6	1 55.62	1 37.5	1 43 2.0	3.64	0.988 4530	1.025 7180	1.025 0621
Apr. 1	336 34 59.2	1 55.65	1 37.5	1 43 16.5	3.63	0.988 4027	1.024 3688	1.023 6386
5	336 42 41.8	1 55.68	1 37.5	1 43 31.0	3.62	0.988 3523	1.022 8722	1.022 0704
9	336 50 24.6	1 55.71	1 37.6	1 43 45.5	3.62	0.988 3018	1.021 2335	1.020 3621
13	336 58 7.5	1 55.73	+ 1 37.6	− 1 44 0.0	− 3.61	0.988 2512	1.019 4567	1.018 5178
17	337 5 50.4	1 55.76	1 37.6	1 44 14.4	3.61	0.988 2006	1.017 5458	1.016 5414
21	337 13 33.5	1 55.79	1 37.6	1 44 28.8	3.60	0.988 1499	1.015 5052	1.014 4380
25	337 21 16.7	1 55.81	1 37.6	1 44 43.2	3.59	0.988 0992	1.013 3407	1.012 2142
29	337 29 0.0	1 55.84	1 37.6	1 44 57.5	3.58	0.988 0485	1.011 0594	1.009 8770
May 3	337 36 43.4	1 55.87	+ 1 37.6	− 1 45 11.9	− 3.57	0.987 9977	1.008 6682	1.007 4340
7	337 44 26.9	1 55.89	1 37.6	1 45 26.1	3.57	0.987 9469	1.006 1752	1.004 8930
11	337 52 10.6	1 55.92	1 37.6	1 45 40.4	3.56	0.987 8960	1.003 5880	1.002 2611
15	337 59 54.3	1 55.95	1 37.6	1 45 54.6	3.55	0.987 8451	1.000 9134	0.999 5459
19	338 7 38.1	1 55.97	1 37.6	1 46 8.8	3.55	0.987 7941	0.998 1598	0.996 7559
23	338 15 22.1	1 56.00	+ 1 37.6	− 1 46 23.0	− 3.54	0.987 7431	0.995 3358	0.993 9012
27	338 23 6.1	1 56.02	1 37.6	1 46 37.1	3.54	0.987 6921	0.992 4532	0.990 9930
31	338 30 50.3	1 56.05	1 37.6	1 46 51.3	3.53	0.987 6408	0.989 5222	0.988 0424
June 4	338 38 34.5	1 56.08	1 37.6	1 47 5.4	3.52	0.987 5896	0.986 5550	0.985 0612
8	338 46 18.9	1 56.11	1 37.5	1 47 19.4	3.51	0.987 5383	0.983 5626	0.982 0602
12	338 54 3.4	1 56.13	+ 1 37.5	− 1 47 33.5	− 3.50	0.987 4870	0.980 5558	0.979 0508
16	339 1 48.0	1 56.16	1 37.5	1 47 47.4	3.49	0.987 4357	0.977 5469	0.976 0458
20	339 9 32.7	1 56.19	1 37.5	1 48 1.4	3.48	0.987 3843	0.974 5491	0.973 0588
24	339 17 17.5	1 56.22	1 37.4	1 48 15.3	3.48	0.987 3329	0.971 5768	0.970 1051
28	339 25 2.4	1 56.24	1 37.4	1 48 29.2	3.47	0.987 2814	0.968 6454	0.967 1995
July 2	339 32 47.5	1 56.27	+ 1 37.4	− 1 48 43.1	− 3.47	0.987 2298	0.965 7692	0.964 3565
6	339 40 32.6	1 56.30	+ 1 37.4	− 1 48 57.0	− 3.46	0.987 1782	0.962 9629	0.961 5900

SATURN.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	′ ″	′ ″	° ′ ″	″			
July 2	339 32 47.5	1 56.27	+ 1 37.4	− 1 48 43.1	− 3.47	0.987 2298	0.965 7692	0.964 3565
6	339 40 32.6	1 56.30	1 37.4	1 48 57.0	3.46	0.987 1782	0.962 9629	0.961 5900
10	339 48 17.8	1 56.32	1 37.4	1 49 10.8	3.45	0.987 1265	0.960 2397	0.958 9140
14	339 56 3.2	1 56.35	1 37.3	1 49 24.6	3.44	0.987 0748	0.957 6146	0.956 3435
18	340 3 48.6	1 56.38	1 37.3	1 49 38.4	3.44	0.987 0230	0.955 1026	0.953 8941
22	340 11 34.2	1 56.41	+ 1 37.3	− 1 49 52.1	− 3.43	0.986 9712	0.952 7199	0.951 5820
26	340 19 19.9	1 56.44	1 37.2	1 50 5.8	3.42	0.986 9194	0.950 4821	0.949 4220
30	340 27 5.7	1 56.46	1 37.2	1 50 19.4	3.41	0.986 8675	0.948 4032	0.947 4278
Aug. 3	340 34 51.6	1 56.49	1 37.1	1 50 33.1	3.40	0.986 8156	0.946 4966	0.945 6114
7	340 42 37.6	1 56.52	1 37.1	1 50 46.7	3.40	0.986 7636	0.944 7735	0.943 9843
11	340 50 23.8	1 56.55	+ 1 37.1	− 1 51 0.3	− 3.39	0.986 7116	0.943 2454	0.942 5584
15	340 58 10.0	1 56.57	1 37.0	1 51 13.8	3.38	0.986 6596	0.941 9245	0.941 3448
19	341 5 56.3	1 56.60	1 37.0	1 51 27.3	3.37	0.986 6074	0.940 8205	0.940 3532
23	341 13 42.8	1 56.63	1 36.9	1 51 40.8	3.37	0.986 5552	0.939 9433	0.939 5919
27	341 21 29.4	1 56.66	1 36.8	1 51 54.2	3.36	0.986 5029	0.939 2993	0.939 0661
31	341 29 16.1	1 56.68	+ 1 36.8	− 1 52 7.7	− 3.35	0.986 4506	0.938 8926	0.938 7792
Sept. 4	341 37 2.9	1 56.71	1 36.7	1 52 21.1	3.34	0.986 3982	0.938 7259	0.938 7329
8	341 44 49.8	1 56.74	1 35.7	1 52 34.4	3.34	0.986 3458	0.938 8003	0.938 9283
12	341 52 36.8	1 56.77	1 36.6	1 52 47.7	3.33	0.986 2934	0.939 1167	0.939 3655
16	342 0 23.9	1 56.80	1 36.6	1 53 1.0	3.32	0.986 2410	0.939 6742	0.940 0423
20	342 8 11.1	1 56.82	+ 1 36.5	− 1 53 14.3	− 3.31	0.986 1886	0.940 4690	0.940 9539
24	342 15 58.5	1 56.85	1 36.4	1 53 27.5	3.30	0.986 1361	0.941 4958	0.942 0937
28	342 23 46.0	1 56.88	1 36.4	1 53 40.7	3.30	0.986 0835	0.942 7462	0.943 4521
Oct. 2	342 31 33.5	1 56.91	1 36.3	1 53 53.9	3.29	0.986 0308	0.944 2101	0.945 0190
6	342 39 21.2	1 56.94	1 36.2	1 54 7.1	3.28	0.985 9781	0.945 8773	0.946 7840
10	342 47 9.0	1 56.97	+ 1 36.1	− 1 54 20.2	− 3.27	0.985 9253	0.947 7374	0.948 7360
14	342 54 56.9	1 56.99	1 36.0	1 54 33.2	3.26	0.985 8724	0.949 7781	0.950 8622
18	343 2 45.0	1 57.02	1 36.0	1 54 46.3	3.26	0.985 8195	0.951 9863	0.953 1487
22	343 10 33.1	1 57.05	1 35.9	1 54 59.3	3.25	0.985 7666	0.954 3472	0.955 5794
26	343 18 21.4	1 57.08	1 35.8	1 55 12.3	3.24	0.985 7137	0.956 8436	0.958 1378
30	343 26 9.7	1 57.10	+ 1 35.7	− 1 55 25.2	− 3.23	0.985 6608	0.959 4599	0.960 8080
Nov. 3	343 33 58.2	1 57.13	1 35.6	1 55 38.1	3.22	0.985 6079	0.962 1801	0.963 5740
7	343 41 46.8	1 57.16	1 35.6	1 55 51.0	3.22	0.985 5548	0.964 9880	0.966 4202
11	343 49 35.5	1 57.19	1 35.5	1 56 3.9	3.21	0.985 5016	0.967 8687	0.969 3314
15	343 57 24.3	1 57.22	1 35.4	1 56 16.7	3.20	0.985 4484	0.970 8063	0.972 2914
19	344 5 13.2	1 57.25	+ 1 35.3	− 1 56 29.4	− 3.19	0.985 3952	0.973 7845	0.975 2834
23	344 13 2.3	1 57.27	1 35.2	1 56 42.2	3.18	0.985 3419	0.976 7862	0.978 2909
27	344 20 51.4	1 57.30	1 35.1	1 56 54.9	3.17	0.985 2886	0.979 7958	0.981 2991
Dec. 1	344 28 40.7	1 57.33	1 35.0	1 57 7.6	3.17	0.985 2353	0.982 7991	0.984 2941
5	344 36 30.1	1 57.36	1 34.9	1 57 20.2	3.16	0.985 1819	0.985 7827	0.987 2632
9	344 44 19.6	1 57.39	+ 1 34.8	− 1 57 32.8	− 3.15	0.985 1285	0.988 7340	0.990 1935
13	344 52 9.2	1 57.42	1 34.7	1 57 45.4	3.14	0.985 0751	0.991 6401	0.993 0722
17	344 59 58.9	1 57.44	1 34.6	1 57 58.0	3.13	0.985 0216	0.994 4882	0.995 8866
21	345 7 48.7	1 57.47	1 34.5	1 58 10.5	3.12	0.984 9681	0.997 2659	0.998 6247
25	345 15 38.7	1 57.50	1 34.4	1 58 23.0	3.12	0.984 9145	0.999 9618	1.001 2761
29	345 23 28.7	1 57.53	+ 1 34.3	− 1 58 35.4	− 3.11	0.984 8609	1.002 5665	1.003 8319
33	345 31 18.9	1 57.55	+ 1 34.1	− 1 58 47.8	− 3.10	0.984 8073	1.005 0715	

URANUS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth—	
							At Date.	At Intermediate Date.
	° ′ ″	″	″	° ′ ″	″			
Jan. 3	274 28 20.2	41.42	+ 6.3	− 0 16 32.4	− 0.52	1.287 4686	1.308 7733	1.308 5503
11	274 33 51.5	41.41	6.3	0 16 36.5	0.52	1.287 4999	1.308 2324	1.307 8206
19	274 39 22.7	41.41	6.3	0 16 40.7	0.52	1.287 5312	1.307 3163	1.306 7210
27	274 44 54.0	41.40	6.3	0 16 44.8	0.52	1.287 5625	1.306 0369	1.305 2665
Feb. 4	274 50 25.1	41.39	6.3	0 16 49.0	0.52	1.287 5938	1.304 4140	1.303 4825
12	274 55 56.2	41.39	+ 6.4	− 0 16 53.1	− 0.52	1.287 6250	1.302 4761	1.301 3983
20	275 1 27.3	41.38	6.4	0 16 57.3	0.52	1.287 6563	1.300 2530	1.299 0448
28	275 6 58.3	41.37	6.4	0 17 1.4	0.52	1.287 6876	1.297 7791	1.296 4616
Mar. 8	275 12 29.3	41.37	6.4	0 17 5.6	0.52	1.287 7189	1.295 0983	1.293 6949
16	275 18 0.2	41.36	6.5	0 17 9.7	0.52	1.287 7501	1.292 2569	1.290 7904
24	275 23 31.1	41.36	+ 6.5	− 0 17 13.8	− 0.52	1.287 7814	1.289 3019	1.287 7986
Apr. 1	275 29 1.9	41.35	6.5	0 17 18.0	0.52	1.287 8127	1.286 2878	1.284 7763
9	275 34 32.6	41.35	6.5	0 17 22.1	0.52	1.287 8439	1.283 2718	1.281 7808
17	275 40 3.3	41.34	6.6	0 17 26.2	0.52	1.287 8751	1.280 3098	1.278 8665
25	275 45 34.0	41.33	6.6	0 17 30.3	0.52	1.287 9064	1.277 4583	1.276 0929
May 3	275 51 4.6	41.32	+ 6.6	− 0 17 34.5	− 0.52	1.287 9376	1.274 7774	1.273 5186
11	275 56 35.1	41.31	6.6	0 17 38.6	0.51	1.287 9688	1.272 3222	1.271 1945
19	276 2 5.6	41.31	6.7	0 17 42.7	0.51	1.288 0000	1.270 1418	1.269 1701
27	276 7 36.1	41.30	6.7	0 17 46.8	0.51	1.288 0312	1.268 2851	1.267 4921
June 4	276 13 6.5	41.29	6.7	0 17 50.9	0.51	1.288 0624	1.266 7949	1.266 1970
12	276 18 36.8	41.29	+ 6.7	− 0 17 55.0	− 0.51	1.288 0936	1.265 7018	1.265 3121
20	276 24 7.1	41.28	6.7	0 17 59.1	0.51	1.288 1247	1.265 0308	1.264 8599
28	276 29 37.4	41.28	6.7	0 18 3.2	0.51	1.288 1559	1.264 8003	1.264 8522
July 6	276 35 7.6	41.27	6.8	0 18 7.3	0.51	1.288 1871	1.265 0146	1.265 2865
14	276 40 37.7	41.27	6.8	0 18 11.4	0.51	1.288 2182	1.265 6667	1.266 1538
22	276 46 7.8	41.26	+ 6.8	− 0 18 15.4	− 0.51	1.288 2493	1.266 7453	1.267 4379
30	276 51 37.9	41.26	6.8	0 18 19.5	0.51	1.288 2805	1.268 2273	1.269 1084
Aug. 7	276 57 7.9	41.25	6.8	0 18 23.6	0.51	1.288 3116	1.270 0769	1.271 1278
15	277 2 37.8	41.25	6.9	0 18 27.7	0.51	1.288 3427	1.272 2558	1.273 4552
23	277 8 7.7	41.24	6.9	0 18 31.8	0.51	1.288 3738	1.274 7198	1.276 0423
31	277 13 37.6	41.23	+ 6.9	− 0 18 35.8	− 0.51	1.288 4049	1.277 4160	1.278 8336
Sept. 8	277 19 7.4	41.23	6.9	0 18 39.9	0.51	1.288 4360	1.280 2888	1.281 7746
16	277 24 37.2	41.22	6.9	0 18 43.9	0.51	1.288 4671	1.283 2843	1.284 8105
24	277 30 6.9	41.21	7.0	0 18 48.0	0.51	1.288 4982	1.286 3452	1.287 8816
Oct. 2	277 35 36.5	41.21	7.0	0 18 52.0	0.51	1.288 5293	1.289 4122	1.290 9309
10	277 41 6.1	41.20	+ 7.0	− 0 18 56.1	− 0.51	1.288 5604	1.292 4313	1.293 9069
18	277 46 35.7	41.20	7.0	0 19 0.1	0.51	1.288 5915	1.295 3510	1.296 7573
26	277 52 5.2	41.19	7.0	0 19 4.2	0.51	1.288 6225	1.298 1193	1.299 4316
Nov. 3	277 57 34.7	41.19	7.1	0 19 8.2	0.50	1.288 6536	1.300 6895	1.301 8879
11	278 3 4.1	41.18	7.1	0 19 12.2	0.50	1.288 6847	1.303 0222	1.304 0876
19	278 8 33.5	41.17	+ 7.1	− 0 19 16.3	− 0.50	1.288 7157	1.305 0793	1.305 9934
27	278 14 2.9	41.16	7.1	0 19 20.3	0.50	1.288 7467	1.306 8265	1.307 5760
Dec. 5	278 19 32.1	41.16	7.1	0 19 24.3	0.50	1.288 7777	1.308 2392	1.308 8136
13	278 25 1.4	41.15	7.2	0 19 28.3	0.50	1.288 8087	1.309 2970	1.309 6865
21	278 30 30.6	41.15	7.2	0 19 32.4	0.50	1.288 8397	1.309 9809	1.310 1795
29	278 35 59.7	41.14	+ 7.2	− 0 19 36.4	− 0.50	1.288 8707	1.310 2822	1.310 2885
37	278 41 28.8	41.14	+ 7.2	− 0 19 40.4	− 0.50	1.288 9017	. . . .	. . . .

NEPTUNE.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
	° ′ ″	″	″	° ′ ″	″			
Jan. 3	99 1 59.0	21.91	−44.5	−0 56 6.6	+0.58	1.476 0223	1.461 5382	1.461 6374
11	99 4 54.3	21.91	44.4	0 56 2.0	0.58	1.476 0255	1.461 8108	1.462 0572
19	99 7 49.5	21.91	44.4	0 55 57.3	0.58	1.476 0286	1.462 3754	1.462 7634
27	99 10 44.8	21.91	44.4	0 55 52.7	0.58	1.476 0317	1.463 2191	1.463 7401
Feb. 4	99 13 40.1	21.91	44.3	0 55 48.1	0.58	1.476 0348	1.464 3224	1.464 9629
12	99 16 35.4	21.91	−44.3	−0 55 43.5	+0.58	1.476 0379	1.465 6575	1.466 4023
20	99 19 30.7	21.91	44.2	0 55 38.9	0.58	1.476 0410	1.467 1934	1.468 0273
28	99 22 26.0	21.91	44.2	0 55 34.2	0.58	1.476 0441	1.468 8984	1.469 8016
Mar. 8	99 25 21.3	21.91	44.2	0 55 29.6	0.58	1.476 0472	1.470 7323	1.471 6854
16	99 28 16.6	21.91	44.1	0 55 25.0	0.58	1.476 0503	1.472 6565	1.473 6411
24	99 31 11.9	21.91	−44.1	−0 55 20.4	+0.58	1.476 0534	1.474 6339	1.475 6299
Apr. 1	99 34 7.2	21.91	44.0	0 55 15.7	0.58	1.476 0565	1.476 6245	1.477 6127
9	99 37 2.5	21.91	44.0	0 55 11.1	0.58	1.476 0595	1.478 5903	1.479 5533
17	99 39 57.7	21.91	44.0	0 55 6.4	0.58	1.476 0626	1.480 4969	1.481 4177
25	99 42 53.1	21.91	43.9	0 55 1.8	0.58	1.476 0657	1.482 3116	1.483 1741
May 3	99 45 48.3	21.91	−43.9	−0 54 57.1	+0.58	1.476 0688	1.484 0024	1.484 7934
11	99 48 43.6	21.91	43.8	0 54 52.5	0.58	1.476 0718	1.485 5442	1.486 2515
19	99 51 38.9	21.91	43.8	0 54 47.8	0.58	1.476 0749	1.486 9130	1.487 5258
27	99 54 34.2	21.91	43.8	0 54 43.2	0.58	1.476 0779	1.488 0879	1.488 5966
June 4	99 57 29.5	21.91	43.7	0 54 38.5	0.58	1.476 0810	1.489 0509	1.489 4490
12	100 0 24.8	21.91	−43.7	−0 54 33.9	+0.58	1.476 0840	1.489 7899	1.490 0723
20	100 3 20.1	21.91	43.7	0 54 29.2	0.58	1.476 0871	1.490 2951	1.490 4570
28	100 6 15.3	21.91	43.6	0 54 24.5	0.58	1.476 0901	1.490 5579	1.490 5973
July 6	100 9 10.6	21.91	43.6	0 54 19.9	0.58	1.476 0931	1.490 5756	1.490 4929
14	100 12 5.9	21.91	43.5	0 54 15.2	0.58	1.476 0961	1.490 3494	1.490 1452
22	100 15 1.2	21.91	−43.5	−0 54 10.5	+0.58	1.476 0991	1.489 8811	1.489 5575
30	100 17 56.5	21.91	43.4	0 54 5.9	0.58	1.476 1021	1.489 1762	1.488 7387
Aug. 7	100 20 51.8	21.91	43.4	0 54 1.2	0.58	1.476 1051	1.488 2465	1.487 7011
15	100 23 47.1	21.91	43.4	0 53 56.5	0.58	1.476 1081	1.487 1046	1.486 4587
23	100 26 42.4	21.91	43.3	0 53 51.8	0.59	1.476 1111	1.485 7661	1.485 0293
31	100 29 37.6	21.91	−43.3	−0 53 47.1	+0.59	1.476 1141	1.484 2514	1.483 4358
Sept. 8	100 32 32.9	21.91	43.2	0 53 42.5	0.59	1.476 1171	1.482 5854	1.481 7026
16	100 35 28.2	21.91	43.2	0 53 37.8	0.59	1.476 1200	1.480 7919	1.479 8572
24	100 38 23.4	21.91	43.1	0 53 33.1	0.59	1.476 1230	1.478 9026	1.477 9322
Oct. 2	100 41 18.7	21.91	43.1	0 53 28.4	0.59	1.476 1259	1.476 9503	1.475 9612
10	100 44 14.0	21.91	−43.0	−0 53 23.7	+0.59	1.476 1289	1.474 9695	1.473 9792
18	100 47 9.3	21.91	43.0	0 53 19.0	0.59	1.476 1318	1.472 9958	1.472 0242
26	100 50 4.6	21.91	43.0	0 53 14.3	0.59	1.476 1348	1.471 0694	1.470 1362
Nov. 3	100 52 59.9	21.91	42.9	0 53 9.6	0.59	1.476 1377	1.469 2293	1.468 3534
11	100 55 55.1	21.91	42.9	0 53 4.9	0.59	1.476 1406	1.467 5131	1.466 7132
19	100 58 50.4	21.91	−42.8	−0 53 0.2	+0.59	1.476 1435	1.465 9583	1.465 2535
27	101 1 45.7	21.91	42.8	0 52 55.5	0.59	1.476 1464	1.464 6020	1.464 0078
Dec. 5	101 4 41.0	21.91	42.8	0 52 50.8	0.59	1.476 1493	1.463 4740	1.463 0039
13	101 7 36.3	21.91	42.7	0 52 46.1	0.59	1.476 1522	1.462 6001	1.462 2657
21	101 10 31.5	21.91	42.7	0 52 41.4	0.59	1.476 1550	1.462 0030	1.461 8134
29	101 13 26.8	21.91	−42.6	−0 52 36.7	+0.59	1.476 1579	1.461 6977	1.461 6564
37	101 16 22.1	21.91	−42.6	−0 52 32.0	+0.59	1.476 1607	. . . .	. . . .

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
Jan. 0	+0.156 8349	+0.165 4632	+ 482	−0.890 5372	−0.889 2152	+ 218	−0.386 2794	−0.385 7062	− 312
1	0.174 0783	0.182 6794	471	0.887 8239	0.886 3635	224	0.385 1030	0.384 4699	308
2	0.191 2661	0.199 8375	460	0.884 8340	0.883 2359	229	0.383 8066	0.383 1137	304
3	0.208 3929	0.216 9318	449	0.881 5692	0.879 8341	234	0.382 3910	0.381 6385	300
4	0.225 4534	0.233 9571	438	0.878 0306	0.876 1588	239	0.380 8564	0.380 0440	296
5	+0.242 4424	+0.250 9086	+ 428	−0.874 2191	−0.872 2116	+ 244	−0.379 2033	−0.378 3325	− 292
6	0.259 3550	0.267 7810	418	0.870 1365	0.867 9939	248	0.377 4324	0.376 5030	287
7	0.276 1859	0.284 5693	408	0.865 7842	0.863 5076	252	0.375 5444	0.374 5569	283
8	0.292 9304	0.301 2686	398	0.861 1642	0.858 7540	256	0.373 5403	0.372 4947	278
9	0.309 5834	0.317 8742	389	0.856 2773	0.853 7344	259	0.371 4202	0.370 3170	274
10	+0.326 1404	+0.334 3812	+ 380	−0.851 1254	−0.848 4507	+ 262	−0.369 1851	−0.368 0246	− 269
11	0.342 5961	0.350 7846	371	0.845 7103	0.842 9043	265	0.366 8357	0.365 6183	264
12	0.358 9461	0.367 0801	362	0.840 0331	0.837 0971	268	0.364 3726	0.363 0987	259
13	0.375 1858	0.383 2626	353	0.834 0962	0.831 0304	270	0.361 7967	0.360 4666	254
14	0.391 3099	0.399 3273	345	0.827 9001	0.824 7057	272	0.359 1085	0.357 7226	249
15	+0.407 3141	+0.415 2697	+ 336	−0.821 4474	−0.818 1252	+ 274	−0.356 3090	−0.354 8677	− 244
16	0.423 1934	0.431 0846	328	0.814 7394	0.811 2902	275	0.353 3989	0.351 9026	240
17	0.438 9428	0.446 7672	319	0.807 7778	0.804 2025	276	0.350 3789	0.348 8280	235
18	0.454 5573	0.462 3124	310	0.800 5646	0.796 8642	276	0.347 2499	0.345 6448	231
19	0.470 0320	0.477 7154	301	0.793 1016	0.789 2772	277	0.344 0128	0.342 3540	226
20	+0.485 3620	+0.492 9711	+ 292	−0.785 3912	−0.781 4437	+ 277	−0.340 6685	−0.338 9564	− 222
21	0.500 5420	0.508 0742	283	0.777 4352	0.773 3659	277	0.337 2178	0.335 4529	217
22	0.515 5669	0.523 0196	274	0.769 2362	0.765 0465	276	0.333 6618	0.331 8448	213
23	0.530 4317	0.537 8025	265	0.760 7971	0.756 4883	276	0.330 0020	0.328 1333	209
24	0.545 1315	0.552 4180	256	0.752 1204	0.747 6939	275	0.326 2390	0.324 3193	205
25	+0.559 6614	+0.566 8611	+ 247	−0.743 2092	−0.738 6664	+ 274	−0.322 3744	−0.320 4043	− 200
26	0.574 0165	0.581 1272	239	0.734 0662	0.729 4089	273	0.318 4093	0.316 3895	196
27	0.588 1925	0.595 2119	230	0.724 6950	0.719 9249	271	0.314 3451	0.312 2764	192
28	0.602 1848	0.609 1107	222	0.715 0991	0.710 2176	269	0.310 1834	0.308 0664	188
29	0.615 9890	0.622 8193	214	0.705 2812	0.700 2903	267	0.305 9255	0.303 7609	184
30	+0.629 6010	+0.636 3337	+ 206	−0.695 2454	−0.690 1468	+ 264	−0.301 5729	−0.299 3615	− 180
31	0.643 0168	0.649 6498	198	0.684 9951	0.679 7905	261	0.297 1270	0.294 8696	176
Feb. 1	0.656 2323	0.662 7639	190	0.674 5334	0.669 2244	258	0.292 5895	0.290 2867	172
2	0.669 2440	0.675 6721	182	0.663 8641	0.658 4529	255	0.287 9616	0.285 6144	167
3	0.682 0478	0.688 3707	175	0.652 9910	0.647 4791	252	0.283 2452	0.280 8542	163
4	+0.694 6403	+0.700 8563	+ 167	−0.641 9175	−0.636 3068	+ 249	−0.278 4417	−0.276 0079	− 159
5	0.707 0181	0.713 1253	160	0.630 6474	0.624 9394	246	0.273 5529	0.271 0768	155
6	0.719 1775	0.725 1744	153	0.619 1836	0.613 3805	243	0.268 5799	0.266 0625	151
7	0.731 1156	0.737 0005	146	0.607 5305	0.601 6341	239	0.263 5247	0.260 9667	147
8	0.742 8288	0.748 6002	139	0.595 6916	0.589 7036	236	0.258 3888	0.255 7911	143
9	+0.754 3143	+0.759 9706	+ 133	−0.583 6704	−0.577 5925	+ 232	−0.253 1738	−0.250 5371	− 139
10	0.765 5688	0.771 1086	126	0.571 4703	0.565 3044	228	0.247 8812	0.245 2064	135
11	0.776 5895	0.782 0110	120	0.559 0952	0.552 8429	224	0.242 5127	0.239 8004	131
12	0.787 3727	0.792 6744	114	0.546 5480	0.540 2112	220	0.237 0697	0.234 3208	127
13	0.797 9157	0.803 0960	108	0.533 8328	0.527 4132	215	0.231 5539	0.228 7692	123
14	+0.808 2150	+0.813 2725	+ 102	0.520 9529	−0.514 4524	+ 211	−0.225 9668	−0.223 1470	− 119
15	+0.818 2679	+0.823 2008	+ 97	−0.507 9121	−0.501 3326	+ 206	0.220 3101	−0.217 4561	− 115

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
Feb. 15	+0.818 2679	+0.823 2008	+ 97	−0.507 9121	−0.501 3326	+ 206	−0.220 3101	−0.217 4561	− 115
16	0.828 0708	0.832 8775	91	0.494 7143	0.488 0576	202	0.214 5854	0.211 6981	111
17	0.837 6206	0.842 2996	86	0.481 3632	0.474 6316	197	0.208 7944	0.205 8746	107
18	0.846 9141	0.851 4638	81	0.467 8632	0.461 0586	193	0.202 9389	0.199 9875	103
19	0.855 9482	0.860 3671	76	0.454 2182	0.447 3426	188	0.197 0207	0.194 0388	99
20	+0.864 7201	+0.869 0067	+ 71	−0.440 4327	−0.433 4885	+ 183	−0.191 0418	−0.188 0301	− 95
21	0.873 2266	0.877 3796	67	0.426 5109	0.419 5004	178	0.185 0038	0.181 9633	91
22	0.881 4652	0.885 4833	63	0.412 4576	0.405 3831	173	0.178 9087	0.175 8404	87
23	0.889 4334	0.893 3153	59	0.398 2775	0.391 1413	168	0.172 7586	0.169 6634	83
24	0.897 1286	0.900 8731	55	0.383 9752	0.376 7797	163	0.166 5552	0.163 4345	79
25	+0.904 5485	+0.908 1546	+ 51	−0.369 5555	−0.362 3031	+ 158	−0.160 3013	−0.157 1557	− 76
26	0.911 6912	0.915 1580	47	0.355 0232	0.347 7164	153	0.153 9982	0.150 8290	72
27	0.918 5547	0.921 8813	43	0.340 3832	0.333 0243	147	0.147 6484	0.144 4564	68
28	0.925 1374	0.928 3228	39	0.325 6403	0.318 2317	142	0.141 2535	0.138 0400	64
Mar. 1	0.931 4374	0.934 4810	36	0.310 7992	0.303 3433	136	0.134 8161	0.131 5820	61
2	+0.937 4535	+0.940 3545	+ 33	−0.295 8647	−0.288 3640	+ 131	−0.128 3380	−0.125 0843	− 57
3	0.943 1839	0.945 9417	30	0.280 8416	0.273 2982	125	0.121 8212	0.118 5490	53
4	0.948 6277	0.951 2419	27	0.265 7344	0.258 1509	119	0.115 2679	0.111 9783	49
5	0.953 7841	0.956 2538	24	0.250 5483	0.242 9270	113	0.108 6803	0.105 3742	46
6	0.958 6512	0.960 9762	21	0.235 2877	0.227 6309	108	0.102 0603	0.098 7387	42
7	+0.963 2286	+0.965 4083	+ 19	−0.219 9572	−0.212 2673	+ 102	−0.095 4098	−0.092 0739	− 39
8	0.967 5153	0.969 5497	17	0.204 5617	0.196 8408	97	0.088 7311	0.085 3817	35
9	0.971 5112	0.973 3995	15	0.189 1053	0.181 3557	91	0.082 0259	0.078 6640	32
10	0.975 2148	0.976 9570	13	0.173 5925	0.165 8163	86	0.075 2962	0.071 9228	28
11	0.978 6260	0.980 2216	11	0.158 0277	0.150 2271	82	0.068 5441	0.065 1601	25
12	+0.981 7437	+0.983 1922	+ 9	−0.142 4152	−0.134 5924	+ 77	−0.061 7713	−0.058 3779	− 21
13	0.984 5671	0.985 8684	8	0.126 7594	0.118 9165	69	0.054 9801	0.051 5780	18
14	0.987 0960	0.988 2498	6	0.111 0645	0.103 2040	63	0.048 1719	0.044 7622	14
15	0.989 3295	0.990 3348	5	0.095 3354	0.087 4588	57	0.041 3491	0.037 9326	11
16	0.991 2658	0.992 1227	4	0.079 5754	0.071 6863	51	0.034 5131	0.031 0910	7
17	+0.992 9053	+0.993 6134	+ 3	−0.063 7913	−0.055 8902	+ 45	−0.027 6665	−0.024 2396	− 4
18	0.994 2469	0.994 8059	2	0.047 9844	0.040 0751	39	0.020 8108	0.017 3803	0
19	0.995 2902	0.995 6998	1	0.032 1626	0.024 2472	33	0.013 9483	0.010 5152	+ 3
20	0.996 0346	0.996 2946	+ 1	0.016 3297	−0.008 4106	27	0.007 0812	−0.003 6465	6
21	0.996 4798	0.996 5903	0	−0.000 4907	+0.007 4295	21	−0.000 2115	+0.003 2237	9
22	+0.996 6260	+0.996 5870	0	+0.015 3494	+0.023 2683	+ 16	+0.006 6587	+0.010 0933	+ 12
23	0.996 4732	0.996 2843	0	0.031 1856	0.039 1007	10	0.013 5272	0.016 9602	15
24	0.996 0207	0.995 6826	0	0.047 0129	0.054 9216	+ 5	0.020 3920	0.023 8223	19
25	0.995 2700	0.994 7828	0	0.062 8262	0.070 7260	− 1	0.027 2509	0.030 6774	23
26	0.994 2212	0.993 5850	+ 1	0.078 6205	0.086 5090	6	0.034 1015	0.037 5231	26
27	+0.992 8746	+0.992 0901	+ 1	+0.094 3908	+0.102 2655	− 12	+0.040 9419	+0.044 3576	+ 29
28	0.991 2316	0.990 2989	1	0.110 1323	0.117 9906	17	0.047 7699	0.051 1787	32
29	0.989 2924	0.988 2127	1	0.125 8399	0.133 6796	23	0.054 5834	0.057 9840	36
30	0.987 0596	0.985 8328	2	0.141 5090	0.149 3276	28	0.061 3803	0.064 7719	39
31	0.984 5327	0.983 1597	3	0.157 1349	0.164 9301	34	0.068 1586	0.071 5401	42
Apr. 1	+0.981 7139	+0.980 1953	+ 4	+0.172 7128	+0.180 4823	− 40	+0.074 9162	+0.078 2866	+ 45
2	+0.978 6041	+0.976 9406	+ 5	+0.188 2381	+0.195 9796	− 46	+0.081 6511	+0.085 0094	+ 48

FOR GREENWICH MEA

Date.	X True Equinox.		R M Eq Jan.						
	Noon.	Midnight.	Noon.						
Apr. 1	+0.981 7139	+0.980 1953	+ 4	+0.					
2	0.978 6041	0.976 9406	5	0.					
3	0.975 2050	0.973 3974	6	0.20					
4	0.971 5182	0.969 5675	8	0.219					
5	0.967 5456	0.965 4525	9	0.234 4					
6	+0.963 2886	+0.961 0541	+ 11	+0.249 723					
7	0.958 7491	0.956 3739	13	0.264 9199					
8	0.953 9286	0.951 4134	15	0.280 0379					
9	0.948 8287	0.946 1750	17	0.295 0738	0.				
10	0.943 4521	0.940 6601	20	0.310 0236	0.3				
11	+0.937 7993	+0.934 8698	+ 22	+0.324 8833	+0.332				
12	0.931 8719	0.928 8058	25	0.339 6489	0.346 9				
13	0.925 6717	0.922 4699	28	0.354 3164	0.361 61				
14	0.919 2005	0.915 8636	31	0.368 8818	0.376 124				
15	0.912 4595	0.908 9885	34	0.383 3407	0.390 5289				
16	+0.905 4509	+0.901 8469	+ 38	+0.397 6889	+0.404 8202	–			
17	0.898 1768	0.894 4406	41	0.411 9221	0.418 9942	13			
18	0.890 6388	0.886 7715	45	0.426 0359	0.433 0467	13			
19	0.882 8391	0.878 8420	49	0.440 0260	0.446 9734	144			
20	0.874 7805	0.870 6550	53	0.453 8883	0.460 7701	148			
21	+0.866 4656	+0.862 2126	+ 57	+0.467 6184	+0.474 4325	– 152	+0.		
22	0.857 8965	0.853 5176	61	0.481 2120	0.487 9564	156	0.2		
23	0.849 0763	0.844 5731	65	0.494 6652	0.501 3378	161	0.214		
24	0.840 0082	0.835 3819	70	0.507 9737	0.514 5725	166	0.220 3		
25	0.830 6946	0.825 9468	75	0.521 1336	0.527 6567	171	0.226 04		
26	+0.821 1390	+0.816 2715	+ 80	+0.534 1412	+0.540 5866	– 176	+0.231 690		
27	0.811 3447	0.806 3589	85	0.546 9924	0.553 3583	181	0.237 2653		
28	0.801 3146	0.796 2124	90	0.559 6837	0.565 9683	186	0.242 7707	0.	
29	0.791 0526	0.785 8355	95	0.572 2115	0.578 4130	191	0.248 2053	0.2	
30	0.780 5617	0.775 2317	101	0.584 5723	0.590 6890	195	0.253 5675	0.25	
May 1	+0.769 8458	+0.764 4045	+ 107	+0.596 7627	+0.602 7929	– 199	+0.258 8558	+0.261 4	
2	0.758 9082	0.753 3575	113	0.608 7792	0.614 7214	203	0.264 0689	0.266 0	
3	0.747 7528	0.742 0944	119	0.620 6190	0.626 4716	207	0.269 2053	0.271 74	
4	0.736 3829	0.730 6188	125	0.632 2790	0.638 0407	211	0.274 2635	0.276 763	
5	0.724 8026	0.718 9346	131	0.643 7564	0.649 4257	215	0.279 2425	0.281 701	
6	+0.713 0152	+0.707 0448	+ 138	+0.655 0483	+0.660 6239	– 218	+0.284 1410	+0.286 5595	–
7	0.701 0240	0.694 9532	144	0.666 1521	0.671 6326	222	0.288 9575	0.291 334	
8	0.688 8326	0.682 6629	151	0.677 0651	0.682 4492	225	0.293 6913	0.296 0266	
9	0.676 4444	0.670 1775	158	0.687 7846	0.693 0710	228	0.298 3408	0.300 6337	
10	0.663 8626	0.657 5002	165	0.698 3080	0.703 4954	231	0.302 9052	0.305 1551	
11	+0.651 0907	+0.644 6344	+ 172	+0.708 6326	+0.713 7195	– 234	+0.307 3832	+0.309 5894	+
12	0.638 1319	0.631 5835	180	0.718 7556	0.723 7405	237	0.311 7735	0.313 9354	
13	0.624 9896	0.618 3508	188	0.728 6739	0.733 5555	240	0.316 0750	0.318 1921	1
14	0.611 6674	0.604 9398	196	0.738 3848	0.743 1615	242	0.320 2865	0.322 3581	
15	0.598 1686	0.591 3544	204	0.747 8853	0.752 5557	244	0.324 4067	0.326 4322	1
16	+0.584 4975	+0.577 5983	+ 212	+0.757 1724	+0.761 7352	– 246	+0.328 4345	+0.330 4133	+1
17	+0.570 6574	+0.563 6754	+ 220	+0.766 2437	+0.770 6974	– 248	+0.332 3686	+0.334 3002	+1

EENWICH MEAN NOON AND MIDNIGHT.

			Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
			Noon.	Noon.	Midnight.	Noon.	Noon.	Midnight.	Noon.
May 17			570	+0.562 9656	+0.556 6932	+ 615	+0.244 1947	+0.241 4743	+ 460
18			560	0.550 3807	0.544 0287	630	0.238 7365	0.235 9815	461
19			0	0.537 6375	0.531 2077	644	0.233 2096	0.230 4209	462
20	0.			0.524 7396	0.518 2339	659	0.227 6157	0.224 7941	463
21	0.51			0.511 6910	0.505 1113	673	0.221 9564	0.219 1026	464
22	+0.49			+0.498 4953	+0.491 8436	+ 687	+0.216 2331	+0.213 3481	+ 465
23	0.484 30			0.485 1568	0.478 4352	701	0.210 4478	0.207 5325	466
24	0.469 4037			.471 6795	0.464 8901	715	0.204 6023	0.201 6574	467
25	0.454 3664			458 0676	0.451 2124	728	0.198 6981	0.195 7247	468
26	0.439 2000	0.		44 3252	0.437 4064	741	0.192 7373	0.189 7361	469
27	+0.423 9086	+0.4		4565	+0.423 4762	+ 754	+0.186 7214	+0.183 6934	+ 470
28	0.408 4973	0.400		4658	0.409 4259	767	0.180 6523	0.177 5984	470
29	0.392 9709	0.385		571	0.395 2598	779	0.174 5319	0.171 4530	470
30	0.377 3338	0.369 4		45	0.380 9816	791	0.168 3620	0.165 2590	470
31	0.361 5912	0.353 6		17	0.366 5953	803	0.162 1443	0.159 0180	470
June 1	+0.345 7475	+0.337 7			+0.352 1050	+ 815	+0.155 8805	+0.152 7319	+ 470
2	0.329 8075	0.321 802			0.337 5147	826	0.149 5724	0.146 4023	470
3	0.313 7757	0.305 726			0.322 8277	837	0.143 2217	0.140 0309	470
4	0.297 6566	0.289 565			0.308 0482	848	0.136 8300	0.133 6193	470
5	0.281 4546	0.273 323			.293 1801	859	0.130 3991	0.127 1695	470
6	+0.265 1739	+0.257 0054	4		78 2269	+ 870	+0.123 9307	+0.120 6829	+ 469
7	0.248 8189	0.240 6148	41		3 1928	880	0.117 4263	0.114 1612	469
8	0.232 3937	0.224 1559	42	[illegible]	0816	890	0.110 8879	0.107 6065	468
9	0.215 9023	0.207 6332	43	[illegible]	079	900	0.104 3172	0.101 0203	468
10	0.199 3492	0.191 0508	44	[illegible]	455	910	0.097 7159	0.094 4044	467
11	+0.182 7387	+0.174 4135	+ 450	[illegible]	5	+ 919	+0.091 0859	+0.087 7607	+ 466
12	0.166 0752	0.157 7250	459	[illegible]	5	928	0.084 4290	0.081 0911	465
13	0.149 3633	0.140 9907	468	[illegible]		937	0.077 7471	0.074 3974	464
14	0.132 6077	0.124 2150	477	[illegible]		945	0.071 0421	0.067 6815	463
15	0.115 8131	0.107 4027	486	[illegible]		953	0.064 3159	0.060 9455	462
16	+0.098 9843	+0.090 5586	+ 495	[illegible]		961	+0.057 5705	+0.054 1912	+ 460
17	0.082 1262	0.073 6877	504	[illegible]		969	0.050 8079	0.047 4207	459
18	0.065 2438	0.056 7950	513	[illegible]		76	0.044 0300	0.040 6360	457
19	0.048 3419	0.039 8853	522	[illegible]		3	0.037 2390	0.033 8392	455
20	0.031 4257	0.022 9638	531	[illegible]			0.030 4370	0.027 0325	453
21	+0.014 5002	+0.006 0356	+ 539	[illegible]			+0.023 6260	+0.020 2178	+ 451
22	−0.002 4295	−0.010 8944	547	[illegible]			0.016 8082	0.013 3975	449
23	0.019 3584	0.027 8210	555	[illegible]			0.009 9860	+0.006 5738	447
24	0.036 2814	0.044 7391	563	[illegible]			.003 1613	−0.000 2514	445
25	0.053 1934	0.061 6436	571	0.931			03 6639	0.007 0760	443
26	−0.070 0892	−0.078 5296	+ 579	+0.930 415			0 4875	−0.013 8981	+ 440
27	0.086 9641	0.095 3921	586	0.929 24			3075	0.020 7155	437
28	0.103 8129	0.112 2260	594	0.927			1218	0.027 5262	434
29	0.120 6307	0.129 0267	601	0.926			284	0.034 3282	431
30	0.137 4130	0.145 7892	608	0.924 52			254	0.041 1106	428
July 1	−0.154 1548	−0.162 5092	+ 614	+0.921 955			08	−0.047 8987	+ 425
2	−0.170 8518	−0.179 1821	+ 621	+0.919 45				−0.054 6634	+ 421

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
Apr. 1	+0.981 7139	+0.980 1953	+ 4	+0.172 7128	+0.180 4823	− 40	+0.074 9162	+0.078 2866	+ 45
2	0.978 6041	0.976 9406	5	0.188 2381	0.195 9796	46	0.081 6511	0.085 0094	48
3	0.975 2050	0.973 3974	6	0.203 7062	0.211 4173	51	0.088 3613	0.091 7064	51
4	0.971 5182	0.969 5675	8	0.219 1125	0.226 7913	57	0.095 0447	0.098 3759	54
5	0.967 5456	0.965 4525	9	0.234 4531	0.242 0975	63	0.101 6998	0.105 0159	57
6	+0.963 2886	+0.961 0541	+ 11	+0.249 7236	+0.257 3313	− 69	+0.108 3242	+0.111 6245	+ 61
7	0.958 7491	0.956 3739	13	0.264 9199	0.272 4889	75	0.114 9165	0.118 2000	64
8	0.953 9286	0.951 4134	15	0.280 0379	0.287 5664	82	0.121 4747	0.124 7404	67
9	0.948 8287	0.946 1750	17	0.295 0738	0.302 5598	89	0.127 9970	0.131 2443	71
10	0.943 4521	0.940 6601	20	0.310 0236	0.317 4650	96	0.134 4821	0.137 7100	74
11	+0.937 7993	+0.934 8698	+ 22	+0.324 8833	+0.332 2781	− 102	+0.140 9278	+0.144 1354	+ 77
12	0.931 8719	0.928 8058	25	0.339 6489	0.346 9952	109	0.147 3325	0.150 5189	81
13	0.925 6717	0.922 4699	28	0.354 3164	0.361 6121	115	0.153 6945	0.156 8590	84
14	0.919 2005	0.915 8636	31	0.368 8818	0.376 1248	121	0.160 0121	0.163 1536	87
15	0.912 4595	0.908 9885	34	0.383 3407	0.390 5289	126	0.166 2833	0.169 4009	90
16	+0.905 4509	+0.901 8469	+ 38	+0.397 6889	+0.404 8202	− 131	+0.172 5063	+0.175 5992	+ 93
17	0.898 1768	0.894 4406	41	0.411 9221	0.418 9942	135	0.178 6795	0.181 7468	96
18	0.890 6388	0.886 7715	45	0.426 0359	0.433 0467	139	0.184 8009	0.187 8416	99
19	0.882 8391	0.878 8420	49	0.440 0260	0.446 9734	144	0.190 8687	0.193 8820	102
20	0.874 7805	0.870 6550	53	0.453 8883	0.460 7701	148	0.196 8812	0.199 8660	105
21	+0.866 4656	+0.862 2126	+ 57	+0.467 6184	+0.474 4325	− 152	+0.202 8362	+0.205 7917	+ 108
22	0.857 8965	0.853 5176	61	0.481 2120	0.487 9564	156	0.208 7323	0.211 6576	111
23	0.849 0763	0.844 5731	65	0.494 6652	0.501 3378	161	0.214 5674	0.217 4616	114
24	0.840 0082	0.835 3819	70	0.507 9737	0.514 5725	166	0.220 3400	0.223 2023	118
25	0.830 6946	0.825 9468	75	0.521 1336	0.527 6567	171	0.226 0483	0.228 8778	121
26	+0.821 1390	+0.816 2715	+ 80	+0.534 1412	+0.540 5866	− 176	+0.231 6906	+0.234 4865	+ 125
27	0.811 3447	0.806 3589	85	0.546 9924	0.553 3583	181	0.237 2653	0.240 0268	128
28	0.801 3146	0.796 2124	90	0.559 6837	0.565 9683	186	0.242 7707	0.245 4970	131
29	0.791 0526	0.785 8355	95	0.572 2115	0.578 4130	191	0.248 2053	0.250 8955	134
30	0.780 5617	0.775 2317	101	0.584 5723	0.590 6890	195	0.253 5675	0.256 2210	138
May 1	+0.769 8458	+0.764 4045	+ 107	+0.596 7627	+0.602 7929	− 199	+0.258 8558	+0.261 4718	+ 141
2	0.758 9082	0.753 3575	113	0.608 7792	0.614 7214	203	0.264 0689	0.266 6468	144
3	0.747 7528	0.742 0944	119	0.620 6190	0.626 4716	207	0.269 2053	0.271 7442	148
4	0.736 3829	0.730 6188	125	0.632 2790	0.638 0407	211	0.274 2635	0.276 7630	151
5	0.724 8026	0.718 9346	131	0.643 7564	0.649 4257	215	0.279 2425	0.281 7019	154
6	+0.713 0152	+0.707 0448	+ 138	+0.655 0483	+0.660 6239	− 218	+0.284 1410	+0.286 5595	+ 158
7	0.701 0240	0.694 9532	144	0.666 1521	0.671 6326	222	0.288 9575	0.291 3348	161
8	0.688 8326	0.682 6629	151	0.677 0651	0.682 4492	225	0.293 6913	0.296 0266	164
9	0.676 4444	0.670 1775	158	0.687 7846	0.693 0710	228	0.298 3408	0.300 6337	167
10	0.663 8626	0.657 5002	165	0.698 3080	0.703 4954	231	0.302 9052	0.305 1551	170
11	+0.651 0907	+0.644 6344	+ 172	+0.708 6326	+0.713 7195	− 234	+0.307 3832	+0.309 5894	+ 173
12	0.638 1319	0.631 5835	180	0.718 7556	0.723 7405	237	0.311 7735	0.313 9354	176
13	0.624 9896	0.618 3508	188	0.728 6739	0.733 5555	240	0.316 0750	0.318 1921	179
14	0.611 6674	0.604 9398	196	0.738 3848	0.743 1615	242	0.320 2865	0.322 3581	182
15	0.598 1686	0.591 3544	204	0.747 8853	0.752 5557	244	0.324 4067	0.326 4322	186
16	+0.584 4975	+0.577 5983	+ 212	+0.757 1724	+0.761 7352	− 246	+0.328 4345	+0.330 4133	+ 189
17	+0.570 6574	+0.563 6754	+ 220	+0.766 2437	+0.770 6974	− 248	+0.332 3686	+0.334 3002	+ 192

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. o.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. o.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. o.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
May 17	+0.570 6574	+0.563 6754	+ 220	+0.766 2437	+0.770 6974	− 248	+0.332 3686	+0.334 3002	+ 192
18	0.556 6527	0.549 5900	229	0.775 0961	0.779 4394	249	0.336 2079	0.338 0916	195
19	0.542 4876	0.535 3461	237	0.783 7269	0.787 9583	251	0.339 9511	0.341 7864	198
20	0.528 1660	0.520 9479	246	0.792 1333	0.796 2516	252	0.343 5972	0.345 3834	202
21	0.513 6924	0.506 4000	254	0.800 3130	0.804 3171	253	0.347 1450	0.348 8818	205
22	+0.499 0712	+0.491 7066	+ 263	+0.808 2637	+0.812 1523	− 254	+0.350 5937	+0.352 2805	+ 208
23	0.484 3067	0.476 8722	272	0.815 9828	0.819 7548	254	0.353 9421	0.355 5784	211
24	0.469 4037	0.461 9015	281	0.823 4682	0.827 1225	254	0.357 1892	0.358 7745	215
25	0.454 3664	0.446 7991	290	0.830 7177	0.834 2535	254	0.360 3341	0.361 8680	218
26	0.439 2000	0.431 5696	299	0.837 7296	0.841 1457	254	0.363 3760	0.364 8580	221
27	+0.423 9086	+0.416 2178	+ 308	+0.844 5016	+0.847 7972	− 253	+0.366 3140	+0.367 7438	+ 224
28	0.408 4973	0.400 7482	318	0.851 0323	0.854 2065	252	0.369 1474	0.370 5246	228
29	0.392 9709	0.385 1659	327	0.857 3197	0.860 3719	251	0.371 8754	0.373 1996	231
30	0.377 3338	0.369 4754	336	0.863 3628	0.866 2922	249	0.374 4972	0.375 7682	235
31	0.361 5912	0.353 6817	345	0.869 1600	0.871 9660	247	0.377 0124	0.378 2298	238
June 1	+0.345 7475	+0.337 7893	+ 355	+0.874 7101	+0.877 3921	− 245	+0.379 4204	+0.380 5840	+ 242
2	0.329 8075	0.321 8028	364	0.880 0120	0.882 5697	243	0.381 7205	0.382 8300	246
3	0.313 7757	0.305 7268	374	0.885 0649	0.887 4975	240	0.383 9124	0.384 9676	250
4	0.297 6566	0.289 5657	383	0.889 8674	0.892 1746	237	0.385 9957	0.386 9965	254
5	0.281 4546	0.273 3238	393	0.894 4190	0.896 6003	234	0.387 9700	0.388 9160	258
6	+0.265 1739	+0.257 0054	+ 402	+0.898 7188	+0.900 7740	− 231	+0.389 8347	+0.390 7260	+ 261
7	0.248 8189	0.240 6148	412	0.902 7659	0.904 6943	227	0.391 5898	0.392 4261	264
8	0.232 3937	0.224 1559	421	0.906 5591	0.908 3602	223	0.393 2347	0.394 0157	267
9	0.215 9023	0.207 6332	431	0.910 0976	0.911 7710	219	0.394 7689	0.395 4944	270
10	0.199 3492	0.191 0508	440	0.913 3804	0.914 9254	214	0.396 1921	0.396 8619	273
11	+0.182 7387	+0.174 4135	+ 450	+0.916 4061	+0.917 8224	− 209	+0.397 5038	+0.398 1178	+ 277
12	0.166 0752	0.157 7250	459	0.919 1740	0.920 4608	204	0.398 7037	0.399 2615	280
13	0.149 3633	0.140 9907	468	0.921 6827	0.922 8396	199	0.399 7912	0.400 2927	284
14	0.132 6077	0.124 2150	477	0.923 9314	0.924 9579	193	0.400 7660	0.401 2111	287
15	0.115 8131	0.107 4027	486	0.925 9191	0.926 8149	187	0.401 6278	0.402 0161	290
16	+0.098 9843	+0.090 5586	+ 495	+0.927 6452	+0.928 4098	− 181	+0.402 3761	+0.402 7077	+ 293
17	0.082 1262	0.073 6877	504	0.929 1088	0.929 7422	174	0.403 0109	0.403 2856	297
18	0.065 2438	0.056 7950	513	0.930 3097	0.930 8112	167	0.403 5317	0.403 7492	300
19	0.048 3419	0.039 8853	522	0.931 2467	0.931 6164	159	0.403 9381	0.404 0987	304
20	0.031 4257	0.022 9638	531	0.931 9202	0.932 1579	152	0.404 2308	0.404 3341	307
21	+0.014 5002	+0.006 0356	+ 539	+0.932 3296	+0.932 4352	− 144	+0.404 4087	+0.404 4548	+ 311
22	−0.002 4295	−0.010 8944	547	0.932 4747	0.932 4481	136	0.404 4722	0.404 4610	314
23	0.019 3584	0.027 8210	555	0.932 3555	0.932 1971	127	0.404 4211	0.404 3526	317
24	0.036 2814	0.044 7391	563	0.931 9728	0.931 6823	118	0.404 2557	0.404 1300	320
25	0.053 1934	0.061 6436	571	0.931 3258	0.930 9034	109	0.403 9757	0.403 7930	324
26	−0.070 0892	−0.078 5296	+ 579	+0.930 4152	+0.929 8616	− 99	+0.403 5817	+0.403 3417	+ 327
27	0.086 9641	0.095 3921	586	0.929 2423	0.928 5573	89	0.403 0733	0.402 7765	331
28	0.103 8129	0.112 2260	594	0.927 8067	0.926 9908	79	0.402 4513	0.402 0977	334
29	0.120 6307	0.129 0267	601	0.926 1096	0.925 1635	69	0.401 7157	0.401 3055	338
30	0.137 4130	0.145 7892	608	0.924 1523	0.923 0761	58	0.400 8671	0.400 4004	342
July 1	−0.154 1548	−0.162 5092	+ 614	+0.921 9351	+0.920 7295	− 47	+0.399 9055	+0.399 3826	+ 345
2	−0.170 8518	−0.179 1821	+ 621	+0.919 4594	+0.918 1249	− 36	+0.398 8317	+0.398 2528	+ 348

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
July 1	−0.154 1548	−0.162 5092	+ 614	+0.921 9351	+0.920 7295	− 47	+0.399 9055	+0.399 3826	+ 345
2	0.170 8518	0.179 1821	621	0.919 4594	0.918 1249	36	0.398 8317	0.398 2528	348
3	0.187 4995	0.195 8035	627	0.916 7261	0.915 2632	24	0.397 6459	0.397 0112	351
4	0.204 0936	0.212 3692	633	0.913 7362	0.912 1453	− 12	0.396 3486	0.395 6582	355
5	0.220 6297	0.228 8748	638	0.910 4906	0.908 7723	0	0.394 9403	0.394 1947	358
6	−0.237 1038	−0.245 3163	+ 643	+0.906 9904	+0.905 1451	+ 12	+0.393 4215	+0.392 6208	+ 361
7	0.253 5117	0.261 6895	648	0.903 2364	0.901 2645	24	0.391 7926	0.390 9369	364
8	0.269 8492	0.277 9901	653	0.899 2295	0.897 1314	36	0.390 0537	0.389 1433	367
9	0.286 1118	0.294 2138	657	0.894 9703	0.892 7465	49	0.388 2056	0.387 2407	370
10	0.302 2954	0.310 3560	661	0.890 4600	0.888 1109	62	0.386 2486	0.385 2294	373
11	−0.318 3951	−0.326 4124	+ 665	+0.885 6992	+0.883 2251	+ 75	+0.384 1830	+0.383 1095	+ 376
12	0.334 4072	0.342 3787	668	0.880 6888	0.878 0905	88	0.382 0091	0.380 8819	379
13	0.350 3265	0.358 2499	671	0.875 4302	0.872 7082	102	0.379 7279	0.378 5471	382
14	0.366 1484	0.374 0215	674	0.869 9245	0.867 0792	116	0.377 3396	0.376 1054	385
15	0.381 8685	0.389 6888	677	0.864 1726	0.861 2049	130	0.374 8446	0.373 5574	387
16	−0.397 4818	−0.405 2471	+ 679	+0.858 1762	+0.855 0869	+ 144	+0.372 2438	+0.370 9039	+ 390
17	0.412 9840	0.420 6919	681	0.851 9370	0.848 7267	159	0.369 5377	0.368 1453	393
18	0.428 3702	0.436 0184	683	0.845 4562	0.842 1258	173	0.366 7269	0.365 2826	396
19	0.443 6360	0.451 2223	684	0.838 7356	0.835 2860	188	0.363 8124	0.362 3164	399
20	0.458 7767	0.466 2986	685	0.831 7771	0.828 2091	203	0.360 7947	0.359 2474	402
21	−0.473 7874	−0.481 2427	+ 685	+0.824 5824	+0.820 8973	+ 218	+0.357 6747	+0.356 0766	+ 405
22	0.488 6639	0.496 0503	685	0.817 1540	0.813 3527	233	0.354 4533	0.352 8048	408
23	0.503 4013	0.510 7165	685	0.809 4937	0.805 5774	248	0.351 1313	0.349 4329	410
24	0.517 9953	0.525 2371	684	0.801 6041	0.797 5739	263	0.347 7098	0.345 9620	413
25	0.532 4415	0.539 6080	683	0.793 4874	0.789 3449	279	0.344 1898	0.342 3933	416
26	−0.546 7359	−0.553 8247	+ 682	+0.785 1467	+0.780 8930	+ 294	+0.340 5725	+0.338 7276	+ 419
27	0.560 8739	0.567 8831	681	0.776 5842	0.772 2206	310	0.336 8588	0.334 9662	421
28	0.574 8517	0.581 7794	679	0.767 8026	0.763 3305	325	0.333 0499	0.331 1102	424
29	0.588 6656	0.595 5098	676	0.758 8048	0.754 2258	341	0.329 1471	0.327 1609	426
30	0.602 3118	0.609 0710	673	0.749 5938	0.744 9092	356	0.325 1516	0.323 1194	428
31	−0.615 7869	−0.622 4588	+ 670	+0.740 1722	+0.735 3832	+ 372	+0.321 0645	+0.318 9870	+ 430
Aug. 1	0.629 0866	0.635 6699	667	0.730 5425	0.725 6505	387	0.316 8870	0.314 7648	433
2	0.642 2083	0.648 7012	663	0.720 7076	0.715 7141	403	0.312 6205	0.310 4542	435
3	0.655 1484	0.661 5494	659	0.710 6703	0.705 5765	418	0.308 2660	0.306 0561	437
4	0.667 9037	0.674 2110	655	0.700 4331	0.695 2404	434	0.303 8247	0.301 5719	439
5	−0.680 4708	−0.686 6827	+ 650	+0.689 9986	+0.684 7081	+ 449	+0.299 2979	+0.297 0027	+ 441
6	0.692 8463	0.698 9610	644	0.679 3693	0.673 9824	464	0.294 6866	0.292 3497	443
7	0.705 0266	0.711 0426	638	0.668 5478	0.663 0658	480	0.289 9921	0.287 6140	445
8	0.717 0085	0.722 9239	632	0.657 5367	0.651 9609	495	0.285 2155	0.282 7966	447
9	0.728 7884	0.734 6015	625	0.646 3388	0.640 6705	510	0.280 3577	0.277 8989	449
10	−0.740 3627	−0.746 0716	+ 618	+0.634 9566	+0.629 1974	+ 525	+0.275 4203	+0.272 9221	+ 451
11	0.751 7278	0.757 3308	611	0.623 3932	0.617 5445	541	0.270 4044	0.267 8675	453
12	0.762 8803	0.768 3756	604	0.611 6516	0.605 7149	556	0.265 3115	0.262 7364	455
13	0.773 8165	0.779 2024	596	0.599 7348	0.593 7117	571	0.260 1425	0.257 5301	457
14	0.784 5330	0.789 8079	588	0.587 6460	0.581 5381	586	0.254 8992	0.252 2500	458
15	−0.795 0265	−0.800 1884	+ 579	+0.575 3885	+0.569 1975	+ 601	+0.249 5828	+0.246 8976	+ 459
16	−0.805 2933	−0.810 3407	+ 570	+0.562 9656	+0.556 6932	+ 615	+0.244 1947	+0.241 4743	+ 460

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. o.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. o.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. o.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
Aug. 16	−0.805 2933	−0.810 3407	+ 570	+0.562 9656	+0.556 6932	+ 615	+0.244 1947	+0.241 4743	+ 460
17	0.815 3303	0.820 2615	560	0.550 3807	0.544 0287	630	0.238 7365	0.235 9815	461
18	0.825 1340	0.829 9474	550	0.537 6375	0.531 2077	644	0.233 2096	0.230 4209	462
19	0.834 7013	0.839 3953	540	0.524 7396	0.518 2339	659	0.227 6157	0.224 7941	463
20	0.844 0289	0.848 6018	530	0.511 6910	0.505 1113	673	0.221 9564	0.219 1026	464
21	−0.853 1137	−0.857 5642	+ 519	+0.498 4953	+0.491 8436	+ 687	+0.216 2331	+0.213 3481	+ 465
22	0.861 9529	0.866 2796	508	0.485 1568	0.478 4352	701	0.210 4478	0.207 5325	466
23	0.870 5439	0.874 7454	497	0.471 6795	0.464 8901	715	0.204 6023	0.201 6574	467
24	0.878 8839	0.882 9590	485	0.458 0676	0.451 2124	728	0.198 6981	0.195 7247	468
25	0.886 9704	0.890 9179	473	0.444 3252	0.437 4064	741	0.192 7373	0.189 7361	469
26	−0.894 8013	−0.898 6203	+ 461	+0.430 4565	+0.423 4762	+ 754	+0.186 7214	+0.183 6934	+ 470
27	0.902 3746	0.906 0638	448	0.416 4658	0.409 4259	767	0.180 6523	0.177 5984	470
28	0.909 6879	0.913 2467	435	0.402 3571	0.395 2598	779	0.174 5319	0.171 4530	470
29	0.916 7400	0.920 1673	422	0.388 1345	0.380 9816	791	0.168 3620	0.165 2590	470
30	0.923 5286	0.926 8235	408	0.373 8017	0.366 5953	803	0.162 1443	0.159 0180	470
31	−0.930 0520	−0.933 2138	+ 394	+0.359 3629	+0.352 1050	+ 815	+0.155 8805	+0.152 7319	+ 470
Sept. 1	0.936 3087	0.939 3365	380	0.344 8221	0.337 5147	826	0.149 5724	0.146 4023	470
2	0.942 2969	0.945 1897	365	0.330 1830	0.322 8277	837	0.143 2217	0.140 0309	470
3	0.948 0148	0.950 7718	350	0.315 4493	0.308 0482	848	0.136 8300	0.133 6193	470
4	0.953 4607	0.956 0813	335	0.300 6250	0.293 1801	859	0.130 3991	0.127 1695	470
5	−0.958 6333	−0.961 1162	+ 320	+0.285 7139	+0.278 2269	+ 870	+0.123 9307	+0.120 6829	+ 469
6	0.963 5300	0.965 8746	305	0.270 7197	0.263 1928	880	0.117 4263	0.114 1612	469
7	0.968 1497	0.970 3550	289	0.255 6466	0.248 0816	890	0.110 8879	0.107 6065	468
8	0.972 4903	0.974 5554	273	0.240 4986	0.232 8979	900	0.104 3172	0.101 0203	468
9	0.976 5502	0.978 4744	257	0.225 2800	0.217 6455	910	0.097 7159	0.094 4044	467
10	−0.980 3278	−0.982 1102	+ 241	+0.209 9948	+0.202 3285	+ 919	+0.091 0859	+0.087 7607	+ 466
11	0.983 8214	0.985 4614	224	0.194 6472	0.186 9515	928	0.084 4290	0.081 0911	465
12	0.987 0298	0.988 5265	207	0.179 2419	0.171 5190	937	0.077 7471	0.074 3974	464
13	0.989 9512	0.991 3038	190	0.163 7832	0.156 0351	945	0.071 0421	0.067 6815	463
14	0.992 5841	0.993 7923	173	0.148 2753	0.140 5044	953	0.064 3159	0.060 9455	462
15	−0.994 9277	−0.995 9903	+ 155	+0.132 7231	+0.124 9318	+ 961	+0.057 5705	+0.054 1912	+ 460
16	0.996 9801	0.997 8971	137	0.117 1312	0.109 3219	969	0.050 8079	0.047 4207	459
17	0.998 7409	0.999 5114	119	0.101 5045	0.093 6797	976	0.044 0300	0.040 6360	457
18	1.000 2085	1.000 8322	101	0.085 8476	0.078 0093	983	0.037 2390	0.033 8392	455
19	1.001 3825	1.001 8591	83	0.070 1654	0.062 3165	990	0.030 4370	0.027 0325	453
20	−1.002 2621	−1.002 5916	+ 65	+0.054 4632	+0.046 6061	+ 997	+0.023 6260	+0.020 2178	+ 451
21	1.002 8475	1.003 0294	46	0.038 7458	0.030 8829	1003	0.016 8082	0.013 3975	449
22	1.003 1376	1.003 1722	28	0.023 0180	+0.015 1518	1009	0.009 9860	+0.006 5738	447
23	1.003 1330	1.003 0200	+ 9	+0.007 2848	−0.000 5823	1014	+0.003 1613	−0.000 2514	445
24	1.002 8334	1.002 5732	− 10	−0.008 4489	0.016 3145	1019	−0.003 6639	0.007 0760	443
25	−1.002 2395	−1.001 8322	− 29	−0.024 1785	−0.032 0403	+ 1024	−0.010 4875	−0.013 8981	+ 440
26	1.001 3514	1.000 7970	48	0.039 8993	0.047 7551	1029	0.017 3075	0.020 7155	437
27	1.000 1693	0.999 4683	68	0.055 6070	0.063 4544	1033	0.024 1218	0.027 5262	434
28	0.998 6941	0.997 8466	87	0.071 2968	0.079 1337	1037	0.030 9284	0.034 3282	431
29	0.996 9260	0.995 9323	107	0.086 9646	0.094 7889	1041	0.037 7254	0.041 1106	428
30	−0.994 8656	−0.993 7259	− 126	−0.102 6060	−0.110 4154	+ 1044	−0.044 5108	−0.047 8987	+ 425
Oct. 1	−0.992 5133	−0.991 2280	− 146	−0.118 2167	−0.126 0092	+ 1047	−0.051 2830	−0.054 6634	+ 421

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
Oct. 1	−0.992 5133	−0.991 2280	− 146	−0.118 2167	−0.126 0092	+ 1047	−0.051 2830	−0.054 6634	+ 421
2	0.989 8698	0.988 4389	166	0.133 7924	0.141 5659	1050	0.058 0397	0.061 4118	417
3	0.986 9354	0.985 3592	186	0.149 3289	0.157 0811	1052	0.064 7793	0.068 1421	413
4	0.983 7105	0.981 9893	206	0.164 8219	0.172 5506	1054	0.071 4999	0.074 8524	409
5	0.980 1957	0.978 3299	226	0.180 2667	0.187 9698	1056	0.078 1995	0.081 5409	405
6	−0.976 3918	−0.974 3816	− 246	−0.195 6593	−0.203 3345	+ 1058	−0.084 8763	−0.088 2055	+ 401
7	0.972 2993	0.970 1450	267	0.210 9950	0.218 6402	1059	0.091 5283	0.094 8444	397
8	0.967 9187	0.965 6206	287	0.226 2696	0.233 8824	1060	0.098 1535	0.101 4555	393
9	0.963 2508	0.960 8095	308	0.241 4782	0.249 0564	1060	0.104 7501	0.108 0370	389
10	0.958 2967	0.955 7125	328	0.256 6165	0.264 1578	1060	0.111 3161	0.114 5870	385
11	−0.953 0571	−0.950 3307	− 349	−0.271 6798	−0.279 1819	+ 1059	−0.117 8496	−0.121 1034	+ 380
12	0.947 5333	0.944 6650	369	0.286 6635	0.294 1241	1059	0.124 3484	0.127 5842	376
13	0.941 7260	0.938 7164	390	0.301 5630	0.308 9796	1058	0.130 8107	0.134 0276	371
14	0.935 6366	0.932 4867	411	0.316 3733	0.323 7437	1058	0.137 2346	0.140 4314	366
15	0.929 2667	0.925 9767	432	0.331 0900	0.338 4117	1057	0.143 6177	0.146 7933	361
16	−0.922 6171	−0.919 1881	− 453	−0.345 7080	−0.352 9784	+ 1056	−0.149 9580	−0.153 1115	+ 356
17	0.915 6900	0.912 1230	474	0.360 2224	0.367 4394	1054	0.156 2537	0.159 3841	350
18	0.908 4873	0.904 7833	495	0.374 6287	0.381 7896	1052	0.162 5026	0.165 6088	345
19	0.901 0109	0.897 1709	516	0.388 9217	0.396 0243	1050	0.168 7025	0.171 7835	339
20	0.893 2633	0.889 2884	537	0.403 0969	0.410 1388	1047	0.174 8515	0.177 9062	333
21	−0.885 2467	−0.881 1385	− 558	−0.417 1496	−0.424 1287	+ 1044	−0.180 9474	−0.183 9750	+ 327
22	0.876 9641	0.872 7239	579	0.431 0755	0.437 9896	1041	0.186 9886	0.189 9880	321
23	0.868 4182	0.864 0470	600	0.444 8704	0.451 7171	1037	0.192 9730	0.195 9432	315
24	0.859 6109	0.855 1105	621	0.458 5295	0.465 3071	1033	0.198 8986	0.201 8389	309
25	0.850 5460	0.845 9177	642	0.472 0494	0.478 7558	1028	0.204 7638	0.207 6732	302
26	−0.841 2260	−0.836 4713	− 663	−0.485 4258	−0.492 0591	+ 1023	−0.210 5668	−0.213 4444	+ 296
27	0.831 6538	0.826 7738	684	0.498 6551	0.505 2132	1017	0.216 3058	0.219 1508	289
28	0.821 8318	0.816 8285	705	0.511 7331	0.518 2145	1011	0.221 9792	0.224 7909	282
29	0.811 7639	0.806 6383	726	0.524 6569	0.531 0598	1005	0.227 5856	0.230 3632	275
30	0.801 4521	0.796 2055	747	0.537 4225	0.543 7445	998	0.233 1233	0.235 8657	268
31	−0.790 8989	−0.785 5329	− 768	−0.550 0254	−0.556 2650	+ 991	−0.238 5902	−0.241 2967	+ 261
Nov. 1	0.780 1077	0.774 6238	789	0.562 4627	0.568 6181	984	0.243 9851	0.246 6550	254
2	0.769 0814	0.763 4810	810	0.574 7306	0.580 7999	977	0.249 3064	0.251 9390	246
3	0.757 8228	0.752 1072	831	0.586 8254	0.592 8068	969	0.254 5526	0.257 1469	239
4	0.746 3347	0.740 5056	851	0.598 7435	0.604 6350	961	0.259 7218	0.262 2771	231
5	−0.734 6203	−0.728 6794	− 872	−0.610 4810	−0.616 2810	+ 953	−0.264 8127	−0.267 3283	+ 223
6	0.722 6830	0.716 6314	893	0.622 0346	0.627 7411	944	0.269 8237	0.272 2986	215
7	0.710 5252	0.704 3648	914	0.633 4002	0.639 0115	935	0.274 7530	0.277 1867	207
8	0.698 1507	0.691 8833	934	0.644 5744	0.650 0885	925	0.279 5994	0.281 9909	199
9	0.685 5629	0.679 1899	955	0.655 5534	0.660 9686	915	0.284 3610	0.286 7096	191
10	−0.672 7649	−0.666 2883	− 975	−0.666 3336	−0.671 6482	+ 905	−0.289 0365	−0.291 3415	+ 182
11	0.659 7605	0.653 1817	995	0.676 9117	0.682 1234	894	0.293 6244	0.295 8848	174
12	0.646 5526	0.639 8739	1015	0.687 2830	0.692 3903	883	0.298 1226	0.300 3378	165
13	0.633 1459	0.626 3691	1035	0.697 4447	0.702 4457	871	0.302 5301	0.304 6992	157
14	0.619 5440	0.612 6711	1055	0.707 3929	0.712 2858	859	0.306 8450	0.308 9674	148
15	−0.605 7509	−0.598 7841	− 1075	−0.717 1240	−0.721 9072	+ 847	−0.311 0661	−0.313 1409	+ 139
16	−0.591 7711	−0.584 7125	− 1094	−0.726 6349	−0.731 3064	+ 835	−0.315 1917	−0.317 2181	+ 130

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
Nov. 16	−0.591 7711	−0.584 7125	− 1094	−0.726 6349	−0.731 3064	+ 835	−0.315 1917	−0.317 2181	+ 130
17	0.577 6090	0.570 4611	1114	0.735 9214	0.740 4797	822	0.319 2201	0.321 1975	121
18	0.563 2693	0.556 0343	1133	0.744 9808	0.749 4244	809	0.323 1502	0.325 0780	112
19	0.548 7567	0.541 4371	1152	0.753 8102	0.758 1377	795	0.326 9807	0.328 8581	103
20	0.534 0760	0.526 6742	1171	0.762 4066	0.766 6166	781	0.330 7101	0.332 5366	93
21	−0.519 2322	−0.511 7505	− 1190	−0.770 7675	−0.774 8588	+ 766	−0.334 3374	−0.336 1124	+ 84
22	0.504 2298	0.496 6708	1209	0.778 8903	0.782 8617	751	0.337 8614	0.339 5844	74
23	0.489 0739	0.481 4398	1228	0.786 7728	0.790 6231	736	0.341 2812	0.342 9516	64
24	0.473 7691	0.466 0624	1246	0.794 4126	0.798 1410	720	0.344 5956	0.346 2130	54
25	0.458 3201	0.450 5429	1264	0.801 8080	0.805 4132	704	0.347 8038	0.349 3678	44
26	−0.442 7313	−0.434 8861	− 1282	−0.808 9564	−0.812 4374	+ 687	−0.350 9049	−0.352 4150	+ 34
27	0.427 0078	0.419 0970	1300	0.815 8560	0.819 2119	670	0.353 8979	0.355 3536	24
28	0.411 1542	0.403 1798	1317	0.822 5048	0.825 7345	653	0.356 7819	0.358 1828	14
29	0.395 1746	0.387 1392	1334	0.828 9008	0.832 0034	635	0.359 5561	0.360 9018	+ 4
30	0.379 0743	0.370 9802	1351	0.835 0422	0.838 0168	617	0.362 2197	0.363 5098	− 7
Dec. 1	−0.362 8576	−0.354 7071	− 1368	−0.840 9270	−0.843 7728	+ 598	−0.364 7720	−0.366 0062	− 17
2	0.346 5292	0.338 3245	1385	0.846 5537	0.849 2694	579	0.367 2122	0.368 3899	28
3	0.330 0937	0.321 8373	1402	0.851 9197	0.854 5046	560	0.369 5392	0.370 6601	38
4	0.313 5560	0.305 2503	1418	0.857 0239	0.859 4772	540	0.371 7525	0.372 8163	49
5	0.296 9208	0.288 5681	1434	0.861 8644	0.864 1851	520	0.373 8514	0.374 8577	60
6	−0.280 1929	−0.271 7958	− 1449	−0.866 4392	−0.868 6266	+ 499	−0.375 8351	−0.376 7836	− 71
7	0.263 3773	0.254 9380	1464	0.870 7469	0.872 8000	478	0.377 7030	0.378 5933	81
8	0.246 4787	0.238 0000	1478	0.874 7857	0.876 7039	456	0.379 4543	0.380 2860	92
9	0.229 5024	0.220 9866	1492	0.878 5542	0.880 3365	434	0.381 0884	0.381 8613	103
10	0.212 4532	0.203 9030	1506	0.882 0505	0.883 6961	412	0.382 6047	0.383 3184	114
11	−0.195 3365	−0.186 7544	− 1519	−0.885 2731	−0.886 7813	+ 389	−0.384 0023	−0.384 6565	− 125
12	0.178 1574	0.169 5463	1532	0.888 2206	0.889 5908	366	0.385 2808	0.385 8752	136
13	0.160 9217	0.152 2842	1545	0.890 8917	0.892 1230	343	0.386 4396	0.386 9738	147
14	0.143 6349	0.134 9740	1557	0.893 2848	0.894 3770	319	0.387 4779	0.387 9518	158
15	0.126 3026	0.117 6209	1569	0.895 3993	0.896 3517	295	0.388 3954	0.388 8088	169
16	−0.108 9301	−0.100 2313	− 1580	−0.897 2340	−0.898 0462	+ 270	−0.389 1918	−0.389 5444	− 180
17	0.091 5249	0.082 8113	1591	0.898 7882	0.899 4599	245	0.389 8666	0.390 1583	191
18	0.074 0914	0.065 3660	1602	0.900 0615	0.900 5930	219	0.390 4196	0.390 6505	202
19	0.056 6359	0.047 9017	1612	0.901 0542	0.901 4449	194	0.390 8509	0.391 0206	213
20	0.039 1640	0.030 4238	1622	0.901 7653	0.902 0156	168	0.391 1599	0.391 2688	224
21	−0.021 6815	−0.012 9379	− 1631	−0.902 1956	−0.902 3053	+ 142	−0.391 3472	−0.391 3951	− 235
22	−0.004 1938	+0.004 5502	1640	0.902 3449	0.902 3144	115	0.391 4125	0.391 3994	247
23	+0.013 2935	0.022 0354	1648	0.902 2138	0.902 0429	88	0.391 3558	0.391 2818	258
24	0.030 7753	0.039 5123	1656	0.901 8020	0.901 4912	60	0.391 1775	0.391 0427	269
25	0.048 2459	0.056 9755	1663	0.901 1105	0.900 6598	32	0.390 8776	0.390 6821	280
26	+0.065 7004	+0.074 4199	− 1670	−0.900 1392	−0.899 5489	+ 4	−0.390 4562	−0.390 2001	− 292
27	0.083 1334	0.091 8402	1674	0.898 8889	0.898 1593	− 24	0.389 9138	0.389 5972	303
28	0.100 5397	0.109 2312	1680	0.897 3602	0.896 4916	52	0.389 2503	0.388 8733	315
29	0.117 9143	0.126 5881	1685	0.895 5536	0.894 5461	80	0.388 4662	0.388 0289	326
30	0.135 2521	0.143 9055	1690	0.893 4694	0.892 3235	109	0.387 5616	0.387 0642	338
31	+0.152 5478	+0.161 1783	− 1694	−0.891 1085	−0.889 8245	− 138	−0.386 5369	−0.385 9797	− 349
32	+0.169 7965	+0.178 4016	− 1697	−0.888 4715	−0.887 0496	− 168	−0.385 3924	−0.384 7753	− 360

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	JANUARY.		Day of Month.	FEBRUARY.		Day of Month.	MARCH.	
	True Longitude.	Latitude.		True Longitude.	Latitude.		True Longitude.	Latitude.
	° ′ ″	° ′ ″		° ′ ″	° ′ ″		° ′ ″	° ′ ″
1.0	357 50 11.2	−3 3 21.8	1.0	41 30 39.6	−5 12 35.0	1.0	49 21 27.1	−5 15 2.7
1.5	3 53 32.6	3 28 49.0	1.5	47 26 49.6	5 16 16.9	1.5	55 17 25.8	5 14 8.8
2.0	9 54 4.2	3 51 45.6	2.0	53 23 38.1	5 16 36.2	2.0	61 13 49.3	5 9 53.2
2.5	15 52 24.4	4 12 2.0	2.5	59 21 40.0	5 13 31.1	2.5	67 11 12.3	5 2 17.1
3.0	21 49 11.5	4 29 29.5	3.0	65 21 29.4	5 7 0.6	3.0	73 10 10.3	4 51 22.6
3.5	27 45 2.9	−4 44 0.5	3.5	71 23 38.7	−4 57 4.7	3.5	79 11 19.4	−4 37 12.3
4.0	33 40 34.9	4 55 28.1	4.0	77 28 37.9	4 43 44.5	4.0	85 15 15.3	4 19 50.3
4.5	39 36 22.0	5 3 46.3	4.5	83 36 55.0	4 27 2.7	4.5	91 22 33.3	3 59 21.9
5.0	45 32 56.4	5 8 49.6	5.0	89 48 54.1	4 7 4.0	5.0	97 33 47.4	3 35 53.7
5.5	51 30 47.9	5 10 33.4	5.5	96 4 56.6	3 43 55.3	5.5	103 49 29.5	3 9 34.7
6.0	57 30 23.4	−5 8 54.0	6.0	102 25 19.3	−3 17 46.1	6.0	110 10 8.6	−2 40 36.3
6.5	63 32 6.8	5 3 49.0	6.5	108 50 15.0	2 48 48.9	6.5	116 36 10.2	2 9 12.7
7.0	69 36 18.6	4 55 17.4	7.0	115 19 51.4	2 17 20.0	7.0	123 7 54.7	1 35 41.4
7.5	75 43 16.0	4 43 19.6	7.5	121 54 11.4	1 43 39.1	7.5	129 45 37.2	1 0 23.6
8.0	81 53 12.7	4 27 58.3	8.0	128 33 13.0	1 8 9.7	8.0	136 29 25.9	−0 23 44.7
8.5	88 6 19.1	−4 9 18.6	8.5	135 16 48.8	−0 31 19.1	8.5	143 19 21.5	+0 13 46.1
9.0	94 22 42.1	3 47 28.1	9.0	142 4 46.6	+0 6 22.3	9.0	150 15 16.4	0 51 35.6
9.5	100 42 25.5	3 22 37.3	9.5	148 56 49.6	0 44 20.8	9.5	157 16 54.2	1 29 7.3
10.0	107 5 30.6	2 54 59.9	10.0	155 52 36.9	1 22 0.5	10.0	164 23 49.7	2 5 42.3
10.5	113 31 56.3	2 24 52.6	10.5	162 51 44.0	1 58 44.3	10.5	171 35 29.0	2 40 39.7
11.0	120 1 39.2	−1 52 35.3	11.0	169 53 43.8	+2 33 54.9	11.0	178 51 10.1	+3 13 19.0
11.5	126 34 34.7	1 18 31.0	11.5	176 58 7.0	3 6 55.4	11.5	186 10 4.1	3 43 1.1
12.0	133 10 37.2	0 43 5.3	12.0	184 4 23.4	3 37 11.2	12.0	193 31 17.4	4 9 9.7
12.5	139 49 40.5	−0 6 46.2	12.5	191 12 2.6	4 4 10.4	12.5	200 53 52.8	4 31 13.6
13.0	146 31 38.3	+0 29 56.2	13.0	198 20 34.7	4 27 24.9	13.0	208 16 52.6	4 48 47.1
13.5	153 16 24.5	+1 6 30.3	13.5	205 29 30.9	+4 46 31.0	13.5	215 39 20.2	+5 1 31.4
14.0	160 3 53.4	1 42 23.9	14.0	212 38 24.5	5 1 9.9	14.0	223 0 22.5	5 9 15.0
14.5	166 53 59.6	2 17 4.5	14.5	219 46 50.9	5 11 8.3	14.5	230 19 12.0	5 11 53.7
15.0	173 46 38.1	2 49 59.7	15.0	226 54 27.7	5 16 18.1	15.0	237 35 7.7	5 9 30.2
15.5	180 41 44.0	3 20 37.9	15.5	234 0 55.2	5 16 36.5	15.5	244 47 36.3	5 2 13.6
16.0	187 39 12.2	+3 48 29.2	16.0	241 5 56.0	+5 12 6.0	16.0	251 56 12.2	+4 50 18.5
16.5	194 38 56.5	4 13 5.6	16.5	248 9 14.7	5 2 53.8	16.5	259 0 37.9	4 34 4.0
17.0	201 40 49.4	4 34 1.6	17.0	255 10 37.9	4 49 11.9	17.0	266 0 43.2	4 13 52.7
17.5	208 44 41.5	4 50 54.5	17.5	262 9 53.8	4 31 16.3	17.5	272 56 24.0	3 50 10.0
18.0	215 50 21.0	5 3 25.5	18.0	269 6 51.6	4 9 26.8	18.0	279 47 41.6	3 23 23.1
18.5	222 57 32.7	+5 11 19.9	18.5	276 1 21.8	+3 44 6.7	18.5	286 34 41.9	+2 54 0.5
19.0	230 5 58.2	5 14 27.4	19.0	282 53 14.9	3 15 42.0	19.0	293 17 33.8	2 22 31.3
19.5	237 15 15.1	5 12 42.7	19.5	289 42 22.3	2 44 41.1	19.5	299 56 28.2	1 49 24.6
20.0	244 24 57.7	5 6 5.9	20.0	296 28 35.7	2 11 34.1	20.0	306 31 37.4	1 15 9.6
20.5	251 34 37.0	4 54 42.9	20.5	303 11 47.1	1 36 52.2	20.5	313 3 14.0	0 40 14.9
21.0	258 43 40.7	+4 38 45.4	21.0	309 51 49.0	+1 1 7.1	21.0	319 31 30.2	+0 5 8.4
21.5	265 51 34.9	4 18 30.4	21.5	316 28 34.6	+0 24 50.4	21.5	325 56 37.6	−0 29 43.0
22.0	272 57 44.4	3 54 20.1	22.0	323 1 58.1	−0 11 27.0	22.0	332 18 46.7	1 3 53.8
22.5	280 1 34.0	3 26 41.5	22.5	329 31 54.9	0 47 15.5	22.5	338 38 7.0	1 36 59.6
23.0	287 2 29.9	2 56 5.2	23.0	335 58 22.0	1 22 7.4	23.0	344 54 46.9	2 8 37.9
23.5	294 0 0.5	+2 23 4.5	23.5	342 21 18.4	−1 55 37.0	23.5	351 8 53.6	−2 38 28.1
24.0	300 53 37.7	1 48 14.7	24.0	348 40 45.4	2 27 21.4	24.0	357 20 33.9	3 6 11.3
24.5	307 42 57.7	1 12 11.5	24.5	354 56 46.9	2 57 0.3	24.5	3 29 54.2	3 31 31.0
25.0	314 27 42.0	+0 35 29.8	25.0	1 9 29.4	3 24 16.1	25.0	9 37 1.2	3 54 12.9
25.5	321 7 37.5	−0 1 16.5	25.5	7 19 2.4	3 48 53.8	25.5	15 42 1.7	4 14 4.9
26.0	327 42 36.7	−0 37 35.8	26.0	13 25 38.6	−4 10 41.3	26.0	21 45 3.7	−4 30 57.1
26.5	334 12 38.4	1 12 59.3	26.5	19 29 33.7	4 29 29.0	26.5	27 46 16.7	4 44 41.7
27.0	340 37 46.8	1 47 1.1	27.0	25 31 6.4	4 45 9.0	27.0	33 45 51.7	4 55 13.2
27.5	346 58 11.7	2 19 18.7	27.5	31 30 38.3	4 57 35.7	27.5	39 44 2.0	5 2 27.9
28.0	353 14 7.8	2 49 32.7	28.0	37 28 34.0	5 6 45.2	28.0	45 41 3.2	5 6 23.8
28.5	359 25 54.5	−3 17 26.7	28.5	43 25 20.4	−5 12 34.7	28.5	51 37 13.4	−5 7 0.3
29.0	5 33 55.2	3 42 47.0	29.0	49 21 27.1	5 15 2.7	29.0	57 32 53.5	5 4 18.5
29.5	11 38 36.5	4 5 22.3	29.5	55 17 25.8	5 14 8.8	29.5	63 28 26.9	4 58 20.7
30.0	17 40 28.0	4 25 3.4	30.0	61 13 49.3	5 9 53.2	30.0	69 24 20.1	4 49 9.9
30.5	23 40 1.8	4 41 42.8	30.5	67 11 12.3	5 2 17.1	30.5	75 21 1.9	4 36 50.5
31.0	29 37 51.6	−4 55 14.3	31.0	73 10 10.3	−4 51 22.6	31.0	81 19 3.8	−4 21 27.7
31.5	35 34 32.3	−5 5 33.1	31.5	79 11 19.4	−4 37 12.3	31.5	87 18 59.3	−4 3 7.5

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	APRIL.						Day of Month.	MAY.						Day of Month.	JUNE.					
	True Longitude.			Latitude.				True Longitude.			Latitude.				True Longitude.			Latitude.		
	°	′	″	°	′	″		°	′	″	°	′	″		°	′	″	°	′	″
1.0	93	21	23.5	−3	41	57.2	1.0	126	43	3.2	−0	53	12.2	1.0	175	34	54.3	+3	22	47.0
1.5	99	26	53.1	3	18	5.3	1.5	133	4	44.4	−0	19	47.6	1.5	182	32	38.2	3	48	51.6
2.0	105	36	5.3	2	51	41.5	2.0	139	32	6.1	+0	14	21.7	2.0	189	37	11.9	4	11	52.1
2.5	111	49	37.5	2	22	57.5	2.5	146	5	41.1	0	48	51.8	2.5	196	48	28.5	4	31	16.6
3.0	118	8	5.9	1	52	7.0	3.0	152	45	58.3	1	23	15.9	3.0	204	6	9.0	4	46	35.0
3.5	124	32	5.5	−1	19	26.2	3.5	159	33	21.5	+1	57	4.7	3.5	211	29	41.7	+4	57	20.3
4.0	131	2	7.8	0	45	14.3	4.0	166	28	6.6	2	29	45.7	4.0	218	58	21.6	5	3	10.0
4.5	137	38	40.0	−0	9	53.5	4.5	173	30	20.3	3	0	44.1	4.5	226	31	11.2	5	3	48.0
5.0	144	22	3.6	+0	26	10.1	5.0	180	39	57.9	3	29	23.4	5.0	234	7	2.1	4	59	6.0
5.5	151	12	32.8	1	2	26.8	5.5	187	56	42.0	3	55	6.2	5.5	241	44	37.5	4	49	4.4
6.0	158	10	12.3	+1	38	23.4	6.0	195	20	0.9	+4	17	15.9	6.0	249	22	35.0	+4	33	52.8
6.5	165	14	56.6	2	13	23.3	6.5	202	49	8.3	4	35	18.2	6.5	256	59	31.1	4	13	50.1
7.0	172	26	28.4	2	46	47.2	7.0	210	23	4.5	4	48	42.7	7.0	264	34	4.7	3	49	23.4
7.5	179	44	17.7	3	17	54.6	7.5	218	0	37.3	4	57	5.8	7.5	272	5	0.5	3	21	6.8
8.0	187	7	42.1	3	46	5.1	8.0	225	40	24.5	5	0	11.5	8.0	279	31	12.8	2	49	39.4
8.5	194	35	46.6	+4	10	40.0	8.5	233	20	58.7	+4	57	52.7	8.5	286	51	46.6	+2	15	43.2
9.0	202	7	26.4	4	31	4.6	9.0	241	0	50.5	4	50	12.1	9.0	294	5	59.9	1	40	1.1
9.5	209	41	27.7	4	46	49.9	9.5	248	38	32.6	4	37	22.2	9.5	301	13	23.7	1	3	15.3
10.0	217	16	32.4	4	57	34.0	10.0	256	12	44.6	4	19	44.0	10.0	308	13	41.7	+0	26	5.7
10.5	224	51	20.2	5	3	3.6	10.5	263	42	16.6	3	57	45.6	10.5	315	6	49.0	−0	10	51.3
11.0	232	24	33.4	+5	3	14.4	11.0	271	6	10.4	+3	32	0.8	11.0	321	52	51.2	−0	47	2.9
11.5	239	54	59.8	4	58	10.8	11.5	278	23	42.2	3	3	6.8	11.5	328	32	2.8	1	22	0.5
12.0	247	21	35.7	4	48	5.5	12.0	285	34	22.2	2	31	42.5	12.0	335	4	44.7	1	55	19.8
12.5	254	43	28.3	4	33	18.3	12.5	292	37	54.2	1	58	26.4	12.5	341	31	23.7	2	26	40.0
13.0	261	59	56.5	4	14	14.5	13.0	299	34	14.5	1	23	55.9	13.0	347	52	30.1	2	55	43.8
13.5	269	10	32.1	+3	51	23.2	13.5	306	23	29.9	+0	48	46.1	13.5	354	8	37.0	−3	22	17.0
14.0	276	14	58.3	3	25	16.4	14.0	313	5	56.0	+0	13	29.2	14.0	0	20	18.6	3	46	7.9
14.5	283	13	9.3	2	56	26.9	14.5	319	41	55.1	−0	21	25.6	14.5	6	28	9.7	4	7	7.0
15.0	290	5	8.9	2	25	27.8	15.0	326	11	54.7	0	55	32.1	15.0	12	32	44.8	4	25	6.5
15.5	296	51	8.1	1	52	51.6	15.5	332	36	25.1	1	28	27.3	15.5	18	34	37.3	4	40	0.3
16.0	303	31	24.4	+1	19	9.5	16.0	338	55	58.9	−1	59	50.7	16.0	24	34	19.1	−4	51	43.6
16.5	310	6	19.3	0	44	50.7	16.5	345	11	9.1	2	29	24.5	16.5	30	32	20.2	5	0	12.7
17.0	316	36	17.4	+0	10	23.2	17.0	351	22	28.5	2	56	52.7	17.0	36	29	8.6	5	5	24.9
17.5	323	1	44.5	−0	23	47.2	17.5	357	30	28.5	3	22	1.5	17.5	42	25	10.1	5	7	19.0
18.0	329	23	6.6	0	57	16.5	18.0	3	35	39.0	3	44	38.8	18.0	48	20	48.1	5	5	54.7
18.5	335	40	49.3	−1	29	42.4	18.5	9	38	28.0	−4	4	34.0	18.5	54	16	23.5	−5	1	13.0
19.0	341	55	17.4	2	0	44.5	19.0	15	39	20.7	4	21	38.0	19.0	60	12	15.0	4	53	16.2
19.5	348	6	53.3	2	30	3.9	19.5	21	38	40.0	4	35	43.1	19.5	66	8	39.4	4	42	8.0
20.0	354	15	57.5	2	57	23.4	20.0	27	36	46.0	4	46	43.0	20.0	72	5	51.6	4	27	53.6
20.5	0	22	48.2	3	22	27.6	20.5	33	33	56.8	4	54	32.8	20.5	78	4	5.0	4	10	40.1
21.0	6	27	41.7	−3	45	2.5	21.0	39	30	28.1	−4	59	9.1	21.0	84	3	31.7	−3	50	36.2
21.5	12	30	52.0	4	4	56.1	21.5	45	26	33.7	5	0	30.0	21.5	90	4	23.2	3	27	52.3
22.0	18	32	31.2	4	21	58.1	22.0	51	22	26.1	4	58	35.1	22.0	96	6	50.5	3	2	40.6
22.5	24	32	50.2	4	35	59.8	22.5	57	18	16.6	4	53	25.6	22.5	102	11	4.3	2	35	15.2
23.0	30	31	58.8	4	46	54.5	23.0	63	14	15.5	4	45	4.5	23.0	108	17	16.1	2	5	51.9
23.5	36	30	6.3	−4	54	37.2	23.5	69	10	33.5	−4	33	36.5	23.5	114	25	37.8	−1	34	48.4
24.0	42	27	21.7	4	59	5.0	24.0	75	7	21.6	4	19	7.5	24.0	120	36	22.2	1	2	23.8
24.5	48	23	54.9	5	0	16.4	24.5	81	4	51.5	4	1	45.3	24.5	126	49	43.3	−0	28	58.6
25.0	54	19	56.5	4	58	11.7	25.0	87	3	16.2	3	41	39.4	25.0	133	5	56.5	+0	5	5.2
25.5	60	15	38.9	4	52	53.0	25.5	93	2	50.3	3	19	0.6	25.5	139	25	18.5	0	39	24.1
26.0	66	11	15.6	−4	44	23.8	26.0	99	3	50.6	−2	54	1.0	26.0	145	48	7.1	+1	13	33.6
26.5	72	7	3.0	4	32	49.0	26.5	105	6	35.9	2	26	54.2	26.5	152	14	40.8	1	47	8.4
27.0	78	3	19.8	4	18	15.0	27.0	111	11	27.5	1	57	55.3	27.0	158	45	18.6	2	19	41.9
27.5	84	0	27.1	4	0	49.1	27.5	117	18	48.9	1	27	20.6	27.5	165	20	19.3	2	50	47.0
28.0	89	58	49.1	3	40	40.0	28.0	123	29	6.2	0	55	27.8	28.0	172	0	0.6	3	19	56.0
28.5	95	58	52.7	−3	17	57.5	28.5	129	42	47.4	−0	22	35.9	28.5	178	44	38.1	+3	46	40.9
29.0	102	1	7.4	2	52	52.4	29.0	136	0	21.7	+0	10	54.7	29.0	185	34	24.4	4	10	33.5
29.5	108	6	5.2	2	25	37.0	29.5	142	22	19.4	0	44	41.6	29.5	192	29	27.7	4	31	6.7
30.0	114	14	20.0	1	56	24.8	30.0	148	49	11.4	1	18	21.1	30.0	199	29	50.8	4	47	54.1
30.5	120	26	27.2	1	25	31.0	30.5	155	21	27.2	1	51	27.6	30.5	206	35	29.4	5	0	31.2
31.0	126	43	3.2	−0	53	12.2	31.0	161	59	34.3	+2	23	33.8	31.0	213	46	11.7	+5	8	36.7
31.5	133	4	44.4	−0	19	47.6	31.5	168	43	57.1	+2	54	10.5	31.5	221	1	36.6	+5	11	53.0

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	JULY.		Day of Month.	AUGUST.		Day of Month.	SEPTEMBER.	
	True Longitude.	Latitude.		True Longitude.	Latitude.		True Longitude.	Latitude.
	° ′ ″	° ′ ″		° ′ ″	° ′ ″		° ′ ″	° ′ ″
1.0	213 46 11.7	+5 8 36.7	1.0	267 35 54.5	+3 40 57.9	1.0	319 33 33.7	−0 43 20.6
1.5	221 1 36.6	5 11 53.0	1.5	274 51 8.4	3 10 30.0	1.5	326 21 21.1	1 19 52.8
2.0	228 21 14.0	5 10 7.5	2.0	282 5 18.3	2 37 2.5	2.0	333 5 46.6	1 54 57.8
2.5	235 44 24.9	5 3 14.0	2.5	289 17 43.0	2 1 12.1	2.5	339 46 35.8	2 28 6.9
3.0	243 10 20.9	4 51 12.9	3.0	296 27 42.2	1 23 38.0	3.0	346 23 36.9	2 58 55.0
3.5	250 38 6.7	+4 34 12.5	3.5	303 34 37.9	+0 45 0.9	3.5	352 56 40.6	−3 27 0.8
4.0	258 6 41.1	4 12 29.3	4.0	310 37 55.2	+0 6 1.7	4.0	359 25 41.0	3 52 6.5
4.5	265 34 59.8	3 46 27.2	4.5	317 37 3.1	−0 32 40.2	4.5	5 50 35.5	4 13 58.5
5.0	273 1 57.6	3 16 37.0	5.0	324 31 36.5	1 10 27.7	5.0	12 11 25.9	4 32 26.7
5.5	280 26 31.1	2 43 35.3	5.5	331 21 15.2	1 46 47.3	5.5	18 28 17.8	4 47 24.4
6.0	287 47 41.1	+2 8 3.2	6.0	338 5 45.4	−2 21 9.2	6.0	24 41 20.9	−4 58 47.9
6.5	295 4 34.6	1 30 43.5	6.5	344 44 59.6	2 53 7.9	6.5	30 50 49.0	5 6 36.2
7.0	302 16 27.1	0 52 20.0	7.0	351 18 56.3	3 22 22.7	7.0	36 57 0.2	5 10 50.5
7.5	309 22 43.1	+0 13 35.3	7.5	357 47 40.1	3 48 37.0	7.5	43 0 15.8	5 11 33.6
8.0	316 22 56.6	−0 24 50.7	8.0	4 11 21.0	4 11 38.0	8.0	49 1 1.1	5 8 50.0
8.5	323 16 51.6	−1 2 21.7	8.5	10 30 14.0	−4 31 16.8	8.5	54 59 43.9	−5 2 45.2
9.0	330 4 21.5	1 38 25.6	9.0	16 44 39.1	4 47 27.7	9.0	60 56 55.0	4 53 25.7
9.5	336 45 28.3	2 12 34.9	9.5	22 54 59.8	5 0 7.0	9.5	66 53 7.5	4 40 58.6
10.0	343 20 21.3	2 44 26.6	10.0	29 1 42.9	5 9 13.7	10.0	72 48 56.3	4 25 31.6
10.5	349 49 16.6	3 13 42.1	10.5	35 5 17.7	5 14 48.5	10.5	78 44 57.7	4 7 13.1
11.0	356 12 35.9	−3 40 6.5	11.0	41 6 16.1	−5 16 53.0	11.0	84 41 48.7	−3 46 12.2
11.5	2 30 45.1	4 3 28.6	11.5	47 5 11.3	5 15 30.2	11.5	90 40 6.6	3 22 38.8
12.0	8 44 13.6	4 23 40.0	12.0	53 2 37.5	5 10 44.0	12.0	96 40 29.0	2 56 43.7
12.5	14 53 33.0	4 40 34.6	12.5	58 59 9.2	5 2 39.0	12.5	102 43 32.6	2 28 39.1
13.0	20 59 16.4	4 54 8.3	13.0	64 55 21.2	4 51 20.2	13.0	108 49 52.4	1 58 38.5
13.5	27 1 58.1	−5 4 18.8	13.5	70 51 48.2	−4 36 53.9	13.5	115 0 1.9	−1 26 57.3
14.0	33 2 12.1	5 11 4.8	14.0	76 49 3.4	4 19 26.9	14.0	121 14 31.4	0 53 53.1
14.5	39 0 32.5	5 14 26.3	14.5	82 47 39.3	3 59 7.0	14.5	127 33 47.5	−0 19 45.7
15.0	44 57 32.4	5 14 24.1	15.0	88 48 6.6	3 36 3.3	15.0	133 58 12.4	+0 15 2.6
15.5	50 53 43.6	5 11 0.0	15.5	94 50 53.9	3 10 26.5	15.5	140 28 3.0	0 50 6.4
16.0	56 49 36.3	−5 4 16.5	16.0	100 56 27.6	−2 42 28.7	16.0	147 3 30.3	+1 24 57.8
16.5	62 45 39.3	4 54 17.3	16.5	107 5 11.2	2 12 24.2	16.5	153 44 37.9	1 59 6.8
17.0	68 42 19.4	4 41 7.1	17.0	113 17 25.0	1 40 29.5	17.0	160 31 22.0	2 32 1.3
17.5	74 40 0.9	4 24 51.7	17.5	119 33 26.2	1 7 3.5	17.5	167 23 31.1	3 3 7.7
18.0	80 39 6.1	4 5 38.7	18.0	125 53 27.9	−0 32 27.3	18.0	174 20 45.8	3 31 52.2
18.5	86 39 54.8	−3 43 36.7	18.5	132 17 39.3	+0 2 55.2	18.5	181 22 39.0	+3 57 41.7
19.0	92 42 44.8	3 18 56.7	19.0	138 46 5.7	0 38 37.9	19.0	188 28 36.5	4 20 4.8
19.5	98 47 51.6	2 51 51.3	19.5	145 18 48.3	1 14 12.6	19.5	195 37 58.3	4 38 33.7
20.0	104 55 28.5	2 22 35.2	20.0	151 55 43.7	1 49 8.9	20.0	202 50 0.2	4 52 44.1
20.5	111 5 46.9	1 51 25.3	20.5	158 36 44.7	2 22 56.0	20.5	210 3 55.3	5 2 17.7
21.0	117 18 56.3	−1 18 40.5	21.0	165 21 40.6	+2 55 2.0	21.0	217 18 55.5	+5 7 2.0
21.5	123 35 4.8	0 44 42.1	21.5	172 10 17.2	3 24 55.4	21.5	224 34 14.7	5 6 50.8
22.0	129 54 19.1	−0 9 53.1	22.0	179 2 17.4	3 52 5.7	22.0	231 49 8.9	5 1 44.7
22.5	136 16 44.7	+0 25 21.8	22.5	185 57 21.9	4 16 4.0	22.5	239 2 58.7	4 51 50.6
23.0	142 42 26.2	1 0 36.1	23.0	192 55 9.5	4 36 24.3	23.0	246 15 10.1	4 37 21.0
23.5	149 11 27.5	+1 35 22.2	23.5	199 55 18.1	+4 52 44.0	23.5	253 25 15.1	+4 18 34.1
24.0	155 43 51.9	2 9 11.8	24.0	206 57 25.0	5 4 44.3	24.0	260 32 51.9	3 55 52.1
24.5	162 19 42.1	2 41 36.2	24.5	214 1 7.8	5 12 10.8	24.5	267 37 44.6	3 29 40.9
25.0	168 59 0.4	3 12 6.5	25.0	221 6 4.5	5 14 54.0	25.0	274 39 42.8	3 0 29.0
25.5	175 41 48.7	3 40 14.5	25.5	228 11 54.1	5 12 49.4	25.5	281 38 40.9	2 28 47.1
26.0	182 28 7.6	+4 5 32.8	26.0	235 18 16.6	+5 5 57.6	26.0	288 34 36.6	+1 55 7.1
26.5	189 17 57.2	4 27 35.6	26.5	242 24 53.3	4 54 24.5	26.5	295 27 30.4	1 20 1.4
27.0	196 11 15.6	4 45 59.0	27.0	249 31 26.3	4 38 20.6	27.0	302 17 25.0	0 44 2.6
27.5	203 7 59.1	5 0 21.1	27.5	256 37 38.5	4 18 1.2	27.5	309 4 23.2	+0 7 43.1
28.0	210 8 1.3	5 10 23.3	28.0	263 43 13.9	3 53 46.3	28.0	315 48 28.4	−0 28 25.6
28.5	217 11 13.3	+5 15 50.5	28.5	270 47 56.7	+3 26 0.1	28.5	322 20 43.2	−1 3 53.4
29.0	224 17 22.3	5 16 31.7	29.0	277 51 30.9	2 55 9.9	29.0	329 8 9.5	1 38 11.6
29.5	231 26 11.9	5 12 20.6	29.5	284 53 40.6	2 21 40.7	29.5	335 43 47.4	2 10 53.3
30.0	238 37 21.3	5 3 15.7	30.0	291 54 9.2	1 46 23.5	30.0	342 16 36.4	2 41 34.2
30.5	245 50 25.5	4 49 21.7	30.5	298 52 40.2	1 9 35.3	30.5	348 46 34.8	3 9 52.6
31.0	253 4 55.0	+4 30 48.9	31.0	305 48 56.1	+0 31 58.1	31.0	355 13 39.9	−3 35 29.5
31.5	260 20 16.8	+4 7 53.6	31.5	312 42 39.6	−0 5 52.4	31.5	1 37 48.9	−3 58 8.7

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	OCTOBER.						Day of Month.	NOVEMBER.						Day of Month.	DECEMBER.					
	True Longitude.			Latitude.				True Longitude.			Latitude.				True Longitude.			Latitude.		
	°	′	″	°	′	″		°	′	″	°	′	″		°	′	″	°	′	″
1.0	355	13	39.9	−3	35	29.5	1.0	41	30	47.7	−4	58	31.4	1.0	74	13	1.1	−3	52	40.8
1.5	1	37	48.9	3	58	8.7	1.5	47	33	2.7	4	54	22.5	1.5	80	8	9.4	3	31	3.9
2.0	7	58	59.3	4	17	37.4	2.0	53	33	28.4	4	46	57.2	2.0	86	2	59.6	3	7	9.1
2.5	14	17	9.5	4	33	45.8	2.5	59	32	13.7	4	36	22.9	2.5	91	57	46.1	2	41	10.9
3.0	20	32	19.1	4	46	27.1	3.0	65	29	29.7	4	22	48.5	3.0	97	52	45.0	2	13	24.6
3.5	26	44	29.7	−4	55	37.6	3.5	71	25	30.4	−4	6	24.1	3.5	103	48	15.0	−1	44	6.4
4.0	32	53	45.5	5	1	16.2	4.0	77	20	32.7	3	47	20.9	4.0	109	44	37.1	1	13	33.2
4.5	39	0	13.2	5	3	24.0	4.5	83	14	56.6	3	25	51.0	4.5	115	42	14.7	0	42	2.6
5.0	45	4	3.1	5	2	4.4	5.0	89	9	5.1	3	2	7.2	5.0	121	41	33.9	−0	9	52.7
5.5	51	5	28.7	4	57	22.6	5.5	95	3	24.4	2	36	23.0	5.5	127	43	3.5	+0	22	37.6
6.0	57	4	46.9	−4	49	25.2	6.0	100	58	23.9	−2	8	52.6	6.0	133	47	14.2	+0	55	8.8
6.5	63	2	18.4	4	38	20.2	6.5	106	54	36.0	1	39	50.6	6.5	139	54	38.7	1	27	20.8
7.0	68	58	27.1	4	24	16.3	7.0	112	52	35.7	1	9	32.4	7.0	146	5	51.2	1	58	52.3
7.5	74	53	40.[illegible]	4	7	23.2	7.5	118	53	0.1	0	38	14.2	7.5	152	21	26.9	2	29	21.4
8.0	80	48	28.[illegible]	3	47	51.1	8.0	124	56	28.3	−0	6	13.2	8.0	158	42	0.5	2	58	25.2
8.5	86	43	24.8	−3	25	51.1	8.5	131	3	40.5	+0	26	12.6	8.5	165	8	6.2	+3	25	39.5
9.0	92	39	4.8	3	1	34.4	9.0	137	15	17.3	0	58	43.4	9.0	171	40	15.4	3	50	39.1
9.5	98	36	6.4	2	35	13.2	9.5	143	31	58.7	1	30	58.1	9.5	178	18	56.5	4	12	58.1
10.0	104	35	8.6	2	7	0.5	10.0	149	54	23.2	2	2	33.6	10.0	185	4	32.2	4	32	10.0
10.5	110	36	51.4	1	37	10.1	10.5	156	23	6.4	2	33	5.1	10.5	191	57	18.5	4	47	48.2
11.0	116	41	55.5	−1	5	57.3	11.0	162	58	39.4	+3	2	5.7	11.0	198	57	22.5	+4	59	27.1
11.5	122	51	1.1	0	33	38.5	11.5	169	41	26.8	3	29	6.7	11.5	206	4	41.2	5	6	42.7
12.0	129	4	46.6	−0	0	32.1	12.0	176	31	45.7	3	53	37.8	12.0	213	18	59.2	5	9	13.9
12.5	135	23	48.6	+0	33	1.1	12.5	183	29	42.7	4	15	8.0	12.5	220	39	48.6	5	6	44.6
13.0	141	48	39.9	1	6	38.3	13.0	190	35	13.4	4	33	6.2	13.0	228	6	27.5	4	59	4.4
13.5	148	19	48.3	+1	39	54.3	13.5	197	48	0.1	+4	47	2.8	13.5	235	38	1.7	+4	46	10.4
14.0	154	57	35.7	2	12	21.0	14.0	205	7	30.7	4	56	30.9	14.0	243	13	25.2	4	28	8.3
14.5	161	42	15.9	2	43	28.3	14.5	212	32	59.5	5	1	8.0	14.5	250	51	22.8	4	5	13.2
15.0	168	33	53.7	3	12	44.0	15.0	220	3	27.6	5	0	37.9	15.0	258	30	33.1	3	37	49.2
15.5	175	32	23.2	3	39	34.5	15.5	227	37	44.3	4	54	52.0	15.5	266	9	32.1	3	6	29.1
16.0	182	37	27.6	+4	3	26.2	16.0	235	14	30.8	+4	43	50.4	16.0	273	46	57.5	+2	31	52.8
16.5	189	48	37.8	4	23	46.3	16.5	242	52	22.6	4	27	42.9	16.5	281	21	31.2	1	54	45.3
17.0	197	5	13.4	4	40	4.6	17.0	250	29	55.0	4	6	48.1	17.0	288	52	3.5	1	15	54.6
17.5	204	26	23.1	4	51	54.8	17.5	258	5	45.6	3	41	33.3	17.5	296	17	34.9	+0	36	9.2
18.0	211	51	6.6	4	58	56.4	18.0	265	38	38.9	3	12	32.5	18.0	303	37	18.0	−0	3	43.7
18.5	219	18	17.0	+5	0	55.6	18.5	273	7	29.2	+2	40	24.9	18.5	310	50	37.6	−0	43	0.6
19.0	226	46	43.7	4	57	46.5	19.0	280	31	22.5	2	5	52.7	19.0	317	57	11.1	1	21	2.0
19.5	234	15	15.7	4	49	31.5	19.5	287	49	37.6	1	29	39.0	19.5	324	56	47.4	1	57	14.1
20.0	241	42	44.7	4	36	21.0	20.0	295	1	46.3	0	52	26.4	20.0	331	49	26.2	2	31	8.2
20.5	249	8	8.1	4	18	32.9	20.5	302	7	32.6	+0	14	55.2	20.5	338	35	15.7	3	2	21.2
21.0	256	30	31.4	+3	56	31.4	21.0	309	6	51.7	−0	22	17.4	21.0	345	14	31.5	−3	30	35.0
21.5	263	49	9.7	3	30	46.2	21.5	315	59	48.2	0	58	37.8	21.5	351	47	35.3	3	55	35.8
22.0	271	3	28.7	3	1	50.3	22.0	322	46	34.3	1	33	36.3	22.0	358	14	52.4	4	17	13.7
22.5	278	13	4.7	2	30	18.8	22.5	329	27	28.0	2	6	47.2	22.5	4	36	51.7	4	35	21.9
23.0	285	17	43.6	1	56	47.9	23.0	336	2	51.6	2	37	48.5	23.0	10	54	3.2	4	49	56.6
23.5	292	17	20.5	+1	21	53.6	23.5	342	33	9.8	−3	6	21.7	23.5	17	6	58.1	−5	0	55.8
24.0	299	11	57.9	0	46	10.7	24.0	348	58	48.6	3	32	11.2	24.0	23	16	7.6	5	8	19.4
24.5	306	1	43.9	+0	10	12.6	24.5	355	20	14.4	3	55	4.4	24.5	29	22	1.7	5	12	9.1
25.0	312	46	51.3	−0	25	29.6	25.0	1	37	53.3	4	14	51.2	25.0	35	25	10.0	5	12	27.6
25.5	319	27	35.8	1	0	26.7	25.5	7	52	9.9	4	31	23.6	25.5	41	26	0.2	5	9	18.9
26.0	326	4	14.4	−1	34	12.1	26.0	14	3	27.0	−4	44	35.6	26.0	47	24	58.3	−5	2	48.1
26.5	332	37	4.9	2	6	21.4	26.5	20	12	5.7	4	54	23.2	26.5	53	22	28.2	4	53	1.6
27.0	339	6	24.8	2	36	32.8	27.0	26	18	24.7	5	0	44.2	27.0	59	18	52.2	4	40	6.8
27.5	345	32	29.8	3	4	26.8	27.5	32	22	40.8	5	3	38.3	27.5	65	14	30.5	4	24	12.3
28.0	351	55	34.4	3	29	46.3	28.0	38	25	8.7	5	3	6.8	28.0	71	9	41.5	4	5	28.0
28.5	358	15	51.1	−3	52	1[illegible].4	28.5	44	26	1.5	−4	59	12.5	28.5	77	4	42.1	−3	44	5.1
29.0	4	33	30.4	4	11	44.9	29.0	50	25	30.7	4	52	0.2	29.0	82	59	47.9	3	20	15.9
29.5	10	48	40.9	4	28	1.8	29.5	56	23	47.1	4	41	36.2	29.5	88	55	13.4	2	54	14.3
30.0	17	1	29.5	4	40	59.6	30.0	62	21	0.9	4	28	8.4	30.0	94	51	12.5	2	26	15.0
30.5	23	12	1.8	4	50	33.1	30.5	68	17	22.1	4	11	46.3	30.5	100	47	58.6	1	56	35.8
31.0	29	20	22.5	−4	56	39.5	31.0	74	13	1.1	−3	52	40.8	31.0	106	45	45.0	−1	25	32.6
31.5	35	26	36.2	−4	59	18.3	31.5	80	8	9.4	−3	31	3.9	31.5	112	44	45.6	−0	53	24.6

GREENWICH MEAN NOON.

Date.	MOON'S EQUATOR.			Γ′ Longitude of the Moon's Perigee. Daily Motion, + 6′.684	☊ Mean Longitude of Moon's Ascending Node. Daily Motion, — 3′.177	☾ Moon's Mean Longitude.
	i Inclination to the Earth's Equator.	Δ Ascending Node on Earth's Equator to Ascending Node on Ecliptic.	☊′ Ascending Node on Earth's Equator.			
	° ′	° ′	° ′	° ′	° ′	° ′
Jan. 0	24 38.9	325 6.2	357 52.3	218 24.8	143 9.5	339 55.9
10	24 38.4	324 35.9	357 50.7	219 31.6	142 37.7	111 41.7
20	24 37.9	324 5.5	357 49.1	220 38.5	142 6.0	243 27.5
30	24 37.5	323 35.2	357 47.6	221 45.3	141 34.2	15 13.4
Feb. 9	24 37.0	323 4.8	357 46.0	222 52.2	141 2.4	146 59.2
19	24 36.5	322 34.5	357 44.4	223 59.0	140 30.6	278 45.0
Mar. 1	24 36.0	322 4.2	357 42.9	225 5.9	139 58.9	50 30.9
11	24 35.5	321 33.7	357 41.4	226 12.7	139 27.1	182 16.7
21	24 35.0	321 3.4	357 39.8	227 19.5	138 55.3	314 2.6
31	24 34.5	320 33.2	357 38.3	228 26.4	138 23.6	85 48.4
Apr. 10	24 34.0	320 2.8	357 36.7	229 33.2	137 51.8	217 34.2
20	24 33.5	319 32.3	357 35.2	230 40.1	137 20.0	349 20.1
30	24 33.0	319 1.9	357 33.8	231 46.9	136 48.2	121 5.9
May 10	24 32.4	318 31.6	357 32.3	232 53.8	136 16.5	252 51.7
20	24 31.9	318 1.1	357 30.8	234 0.6	135 44.7	24 37.6
30	24 31.3	317 30.6	357 29.2	235 7.4	135 12.9	156 23.4
June 9	24 30.7	317 0.2	357 27.7	236 14.3	134 41.1	288 9.3
19	24 30.2	316 29.8	357 26.3	237 21.1	134 9.4	59 55.1
29	24 29.6	315 59.3	357 24.8	238 28.0	133 37.6	191 40.9
July 9	24 29.0	315 28.8	357 23.4	239 34.8	133 5.8	323 26.8
19	24 28.4	314 58.4	357 22.1	240 41.7	132 34.1	95 12.6
29	24 27.8	314 27.9	357 20.7	241 48.5	132 2.3	226 58.5
Aug. 8	24 27.2	313 57.4	357 19.3	242 55.3	131 30.5	358 44.3
18	24 26.6	313 26.8	357 17.9	244 2.2	130 58.7	130 30.1
28	24 26.0	312 56.3	357 16.6	245 9.0	130 27.0	262 16.0
Sept. 7	24 25.4	312 25.8	357 15.3	246 15.9	129 55.2	34 1.8
17	24 24.8	311 55.3	357 14.0	247 22.7	129 23.4	165 47.6
27	24 24.2	311 24.7	357 12.7	248 29.6	128 51.6	297 33.5
Oct. 7	24 23.5	310 54.0	357 11.3	249 36.4	128 19.9	69 19.3
17	24 22.9	310 23.4	357 10.0	250 43.2	127 48.1	201 5.2
27	24 22.3	309 52.8	357 8.8	251 50.1	127 16.3	332 51.0
Nov. 6	24 21.7	309 22.1	357 7.5	252 56.9	126 44.6	104 36.8
16	24 21.0	308 51.4	357 6.3	254 3.8	126 12.8	236 22.7
26	24 20.4	308 21.0	357 5.0	255 10.6	125 41.0	8 8.5
Dec. 6	24 19.7	307 50.5	357 3.8	256 17.5	125 9.2	139 54.3
16	24 19.1	307 19.9	357 2.6	257 24.3	124 37.5	271 40.2
26	24 18.5	306 49.1	357 1.4	258 31.1	124 5.7	43 26.0
36	24 17.8	306 18.4	357 0.2	259 38.0	123 33.9	175 11.9

Mean Solar Days.	Motion of Moon in Mean Longitude.
	° ′
0.1	1 19.06
0.2	2 38.12
0.3	3 57.18
0.4	5 16.23
0.5	6 35.29
0.6	7 54.35
0.7	9 13.41
0.8	10 32.47
0.9	11 51.53
1.0	13 10.58
2.0	26 21.17
3.0	39 31.75
4.0	52 42.33
5.0	65 52.92
6.0	79 3.50
7.0	92 14.09
8.0	105 24.67
9.0	118 35.25
10.0	131 45.84
Hours.	° ′
1	0 32.94
2	1 5.88
3	1 38.82
4	2 11.76
5	2 44.70
6	3 17.65
7	3 50.59
8	4 23.53
9	4 56.47
10	5 29.41
11	6 2.35
12	6 35.29
13	7 8.23
14	7 41.17
15	8 14.11
16	8 47.06
17	9 20.00
18	9 52.94
19	10 25.88
20	10 58.82
21	11 31.76
22	12 4.70
23	12 37.64

QUANTITIES REQUIRED IN COMPUTING THE MOON'S LIBRATION.

ARGUMENT, (☊—λ), or (☊—λ—180°).

☊—λ	μ	$\frac{1}{A}$	B	☊—λ
°	′		° ′	°
0	0.0	39	0 0.0	180
2	0.0	39	0 3.1	178
4	0.1	39	0 6.2	176
6	0.2	39	0 9.3	174
8	0.2	39	0 12.4	172
10	0.2	39	0 15.4	170
12	0.3	40	0 18.5	168
14	0.3	40	0 21.5	166
16	0.3	40	0 24.5	164
18	0.3	41	0 27.4	162
20	0.4	41	0 30.4	160
22	0.4	42	0 33.2	158
24	0.4	42	0 36.1	156
26	0.5	43	0 38.9	154
28	0.5	44	0 41.7	152
30	0.5	45	0 44.4	150
32	0.5	46	0 47.0	148
34	0.5	47	0 49.7	146
36	0.5	48	0 52.2	144
38	0.6	49	0 54.7	142
40	0.6	50	0 57.1	140
42	0.6	52	0 59.4	138
44	0.6	54	1 1.7	136
46	0.6	56	1 3.9	134
48	0.6	58	1 6.0	132
50	0.6	60	1 8.0	130
52	0.6	63	1 10.0	128
54	0.5	66	1 11.8	126
56	0.5	69	1 13.6	124
58	0.5	73	1 15.3	122
60	0.5	77	1 16.9	120
62	0.5	83	1 18.4	118
64	0.5	89	1 19.8	116
66	0.4	95	1 21.1	114
68	0.4	103	1 22.3	112
70	0.4	113	1 23.4	110
72	0.4	125	1 24.4	108
74	0.3	141	1 25.3	106
76	0.3	160	1 26.1	104
78	0.2	186	1 26.8	102
80	0.2	222	1 27.4	100
82	0.2	278	1 27.9	98
84	0.1	370	1 28.3	96
86	0.1	554	1 28.6	94
88	0.0	1110	1 28.7	92
90	0.0	∞	1 28.8	90

μ has the sign of tan (λ —☊)
A has the sign of cos (☊ — λ)
B has the sign of sin (☊ — λ)
See formulæ, page 440.

SUN'S ABERRATION AND HORIZONTAL PARALLAX.

FOR GREENWICH MEAN NOON.

Date.	Aberration. (*Struve.*)	Hor. Par.
1906.	″	″
Jan. 0	— 20.79	8.95
10	20.78	8.95
20	20.77	8.94
30	20.75	8.93
Feb. 9	20.71	8.92
19	— 20.66	8.90
March 1	20.62	8.88
11	20.56	8.86
21	20.50	8.83
31	20.44	8.81
April 10	— 20.38	8.78
20	20.33	8.76
30	20.28	8.73
May 10	20.24	8.71
20	20.19	8.69
30	— 20.16	8.68
June 9	20.13	8.67
19	20.11	8.66
29	20.10	8.65
July 9	20.10	8.66
19	— 20.11	8.66
29	20.13	8.67
Aug. 8	20.16	8.68
18	20.20	8.69
28	20.24	8.71
Sept. 7	— 20.29	8.73
17	20.35	8.76
27	20.41	8.78
Oct. 7	20.47	8.81
17	20.53	8.83
27	— 20.58	8.86
Nov. 6	20.63	8.88
16	20.68	8.90
26	20.72	8.92
Dec. 6	20.75	8.93
16	— 20.77	8.94
26	20.79	8.95
36	— 20.79	8.95

Sun's Mean Equatorial Horizontal Parallax.

8″.80; log = 0.94448.

PRECESSION AND OBLIQUITY, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

FOR GREENWICH MEAN NOON.

Date.	Precession in Longitude from 1906.0.	Nutation.			Obliquity of Ecliptic. (*Peters.*)	Date.	Precession in Longitude from 1906.0.	Nutation.			Obliquity of Ecliptic. (*Peters.*)
		In Longitude.	In R.A.	In Obliquity.				In Longitude.	In R. A.	In Obliquity.	
	″	″	s	″	23° 26′ ″		″	″	s	″	23° 26′ ″
Jan. 0	− 0.11	− 10.15	− 0.621	− 7.94	57.03	July 4	+ 25.35	− 12.27	− 0.750	− 6.85	57.89
5	+ 0.58	9.99	0.611	7.87	57.09	9	26.04	12.15	0.743	6.77	57.96
10	1.27	9.85	0.602	7.78	57.17	14	26.73	12.04	0.737	6.67	58.05
15	1.96	9.74	0.595	7.68	57.27	19	27.42	11.96	0.732	6.57	58.15
20	2.65	9.66	0.590	7.58	57.37	24	28.11	11.91	0.729	6.46	58.25
25	+ 3.33	− 9.61	− 0.586	− 7.47	57.47	29	+ 28.80	− 11.89	− 0.727	− 6.35	58.35
30	4.02	9.59	0.585	7.35	57.58	Aug. 3	29.48	11.90	0.728	6.23	58.46
Feb. 4	4.71	9.62	0.587	7.22	57.70	8	30.17	11.95	0.731	6.11	58.58
9	5.40	9.70	0.592	7.10	57.82	13	30.86	12.03	0.736	5.98	58.70
14	6.09	9.81	0.599	6.98	57.93	18	31.55	12.14	0.743	5.86	58.82
19	+ 6.77	− 9.96	− 0.608	− 6.87	58.04	23	+ 32.24	− 12.29	− 0.751	− 5.74	58.93
24	7.46	10.14	0.619	6.76	58.14	28	32.92	12.47	0.761	5.63	59.04
Mar. 1	8.15	10.36	0.631	6.66	58.24	Sept. 2	33.61	12.68	0.773	5.53	59.13
6	8.84	10.59	0.646	6.57	58.32	7	34.30	12.90	0.788	5.44	59.21
11	9.53	10.84	0.662	6.51	58.38	12	34.99	13.15	0.804	5.37	59.28
16	+ 10.22	− 11.11	− 0.679	− 6.46	58.42	17	+ 35.68	− 13.41	− 0.819	− 5.31	59.33
21	10.90	11.39	0.696	6.42	58.45	22	36.36	13.68	0.835	5.26	59.37
26	11.59	11.67	0.713	6.39	58.48	27	37.05	13.94	0.851	5.23	59.40
31	12.28	11.94	0.730	6.38	58.48	Oct. 2	37.74	14.20	0.868	5.22	59.40
Apr. 5	12.97	12.20	0.746	6.40	58.45	7	38.43	14.45	0.883	5.21	59.40
10	+ 13.66	− 12.44	− 0.761	− 6.42	58.42	12	+ 39.12	− 14.69	− 0.897	− 5.23	59.38
15	14.34	12.66	0.774	6.46	58.38	17	39.80	14.90	0.909	5.25	59.35
20	15.03	12.85	0.785	6.50	58.33	22	40.49	15.08	0.920	5.29	59.31
25	15.72	13.00	0.795	6.55	58.27	27	41.18	15.23	0.930	5.34	59.25
30	16.41	13.12	0.802	6.62	58.20	Nov. 1	41.87	15.33	0.937	5.40	59.18
May 5	+ 17.10	− 13.22	− 0.808	− 6.68	58.13	6	+ 42.56	− 15.40	− 0.942	− 5.47	59.11
10	17.78	13.28	0.811	6.75	58.06	11	43.25	15.43	0.944	5.53	59.04
15	18.47	13.29	0.813	6.81	57.99	16	43.93	15.43	0.943	5.59	58.98
20	19.16	13.28	0.812	6.86	57.93	21	44.62	15.38	0.941	5.65	58.91
25	19.85	13.24	0.809	6.91	57.88	26	45.31	15.30	0.936	5.69	58.85
30	+ 20.54	− 13.17	− 0.804	− 6.94	57.84	Dec. 1	+ 46.00	− 15.18	− 0.929	− 5.73	58.81
June 4	21.23	13.07	0.798	6.96	57.81	6	46.69	15.04	0.920	5.76	58.79
9	21.91	12.95	0.791	6.98	57.79	11	47.37	14.87	0.910	5.78	58.77
14	22.60	12.82	0.783	6.98	57.78	16	48.06	14.69	0.900	5.77	58.77
19	23.29	12.67	0.775	6.96	57.79	21	48.75	14.50	0.888	5.73	58.79
24	+ 23.98	− 12.53	− 0.767	− 6.94	57.81	26	+ 49.44	− 14.30	− 0.876	− 5.68	58.83
29	24.67	12.40	0.758	6.90	57.84	31	50.13	14.11	0.865	5.62	58.88
July 4	+ 25.35	− 12.27	− 0.750	− 6.85	57.89	36	+ 50.81	− 13.94	− 0.854	− 5.55	58.95

	″	
Precession for 1906 (*Struve*).	50.2652	log = 1.70127
Precession in a Solar day . .	0.1376	log = 9.13868
Precession in a Sidereal day .	0.1372	log = 9.13750

Mean Obliquity, 1906.0.	°	′	″
Peters	23	27	4.97
Hansen	23	27	5.21
Le Verrier.	23	27	5.17
Newcomb	23	27	5.45

FOR GREENWICH MEAN NOON.

Date.	$\delta''\psi$	$\delta''\omega$	Date.	$\delta''\psi$	$\delta''\omega$	Date.	$\delta''\psi$	$\delta''\omega$	Date.	$\delta''\psi$	$\delta''\omega$
	″	″		″	″		″	″		″	″
Jan. 0	+ 0.16	+ 0.05	Feb. 15	− 0.18	+ 0.01	Apr. 1	− 0.06	− 0.08	May 16	+ 0.22	+ 0.04
1	0.09	0.07	16	0.16	− 0.03	2	+ 0.01	0.07	17	0.15	0.06
2	+ 0.01	0.07	17	− 0.09	0.06	3	0.07	0.05	18	+ 0.07	0.07
3	− 0.07	0.06	18	+ 0.01	0.08	4	0.11	− 0.02	19	− 0.02	0.06
4	0.13	0.03	19	0.11	0.07	5	0.11	+ 0.02	20	0.09	0.05
5	0.17	+ 0.01	20	0.19	0.05	6	0.08	0.05	21	0.14	+ 0.02
6	0.18	− 0.02	21	0.23	− 0.02	7	+ 0.02	0.07	22	0.16	0.00
7	0.16	0.04	22	0.23	+ 0.01	8	− 0.07	0.08	23	0.15	− 0.03
8	0.11	0.06	23	0.19	0.04	9	0.14	0.07	24	0.13	0.05
9	− 0.05	0.07	24	0.12	0.06	10	0.18	+ 0.04	25	0.09	0.07
10	+ 0.03	− 0.07	25	+ 0.05	+ 0.07	11	− 0.17	0.00	26	− 0.02	− 0.07
11	0.10	0.05	26	− 0.03	0.06	12	0.11	− 0.04	27	+ 0.05	0.06
12	0.14	− 0.02	27	0.10	0.05	13	− 0.02	0.06	28	0.09	0.04
13	0.14	+ 0.02	28	0.15	+ 0.03	14	+ 0.08	0.08	29	0.11	− 0.01
14	0.10	0.05	Mar. 1	0.18	0.00	15	0.16	0.07	30	0.10	+ 0.03
15	+ 0.03	0.07	2	0.18	− 0.03	16	0.23	0.04	31	+ 0.05	0.06
16	− 0.06	0.08	3	0.15	0.05	17	0.26	− 0.01	June 1	− 0.04	0.08
17	0.14	0.06	4	0.10	0.07	18	0.24	+ 0.02	2	0.12	0.08
18	0.19	+ 0.04	5	− 0.04	0.07	19	0.19	0.05	3	0.19	0.06
19	0.19	0.00	6	+ 0.03	0.06	20	0.11	0.07	4	0.22	+ 0.03
20	− 0.15	− 0.04	7	+ 0.10	− 0.04	21	+ 0.02	+ 0.07	5	− 0.21	− 0.01
21	− 0.07	0.07	8	0.13	− 0.01	22	− 0.06	0.06	6	0.13	0.05
22	+ 0.04	0.08	9	0.12	+ 0.03	23	0.12	0.04	7	− 0.04	0.07
23	0.14	0.07	10	0.09	0.06	24	0.16	+ 0.02	8	+ 0.08	0.08
24	0.20	0.04	11	+ 0.01	0.08	25	0.18	− 0.01	9	0.18	0.06
25	0.23	− 0.01	12	− 0.08	0.08	26	0.17	0.04	10	0.24	− 0.04
26	0.22	+ 0.02	13	0.14	0.06	27	0.14	0.06	11	0.26	0.00
27	0.18	0.05	14	0.17	+ 0.02	28	0.08	0.07	12	0.24	+ 0.03
28	0.11	0.07	15	0.16	− 0.02	29	− 0.01	0.07	13	0.18	0.06
29	+ 0.03	0.07	16	0.10	0.05	30	+ 0.05	0.06	14	0.10	0.07
30	− 0.05	+ 0.06	17	− 0.01	− 0.08	May 1	+ 0.09	− 0.03	15	+ 0.03	+ 0.07
31	0.12	0.04	18	+ 0.09	0.08	2	0.10	+ 0.01	16	− 0.06	0.06
Feb. 1	0.17	+ 0.02	19	0.18	0.06	3	0.08	0.04	17	0.12	0.04
2	0.18	0.00	20	0.23	− 0.03	4	+ 0.03	0.07	18	0.15	+ 0.01
3	0.17	− 0.03	21	0.24	+ 0.01	5	− 0.06	0.08	19	0.15	− 0.02
4	0.13	0.06	22	0.21	0.04	6	0.14	0.07	20	0.13	0.05
5	− 0.08	0.08	23	0.15	0.06	7	0.19	0.05	21	0.09	0.07
6	0.00	0.07	24	+ 0.07	0.07	8	0.20	+ 0.01	22	− 0.03	0.08
7	+ 0.07	0.06	25	− 0.01	0.07	9	0.16	− 0.03	23	+ 0.04	0.07
8	0.12	− 0.03	26	0.08	0.06	10	− 0.09	0.06	24	0.09	0.05
9	+ 0.14	0.00	27	− 0.14	+ 0.03	11	+ 0.02	− 0.07	25	+ 0.12	− 0.02
10	0.12	+ 0.04	28	0.17	0.00	12	0.13	0.07	26	0.11	+ 0.01
11	+ 0.07	0.07	29	0.18	− 0.03	13	0.21	0.05	27	+ 0.07	0.05
12	− 0.02	0.08	30	0.16	0.05	14	0.26	− 0.02	28	0.00	0.07
13	0.10	0.07	31	0.12	0.07	15	0.26	+ 0.01	29	− 0.09	0.08
14	0.16	0.05	Apr. 1	− 0.06	0.08	16	0.22	0.04	30	0.17	0.07
15	− 0.18	+ 0.01	2	+ 0.01	− 0.07	17	+ 0.15	+ 0.06	July 1	− 0.22	+ 0.04

FOR GREENWICH MEAN NOON.

Date.	$\delta''\psi$	$\delta''\omega$	Date.	$\delta''\psi$	$\delta''\omega$	Date.	$\delta''\psi$	$\delta''\omega$	Date.	$\delta''\psi$	$\delta''\omega$
	″	″		″	″		″	″		″	″
July 1	− 0.22	+ 0.04	Aug. 16	0.00	− 0.07	Oct. 1	+ 0.10	+ 0.07	Nov. 16	− 0.22	− 0.01
2	0.23	0.00	17	+ 0.07	0.06	2	+ 0.03	0.07	17	0.15	0.05
3	0.19	− 0.04	18	0.12	0.04	3	− 0.06	0.06	18	− 0.05	0.07
4	− 0.09	0.07	19	0.14	− 0.01	4	0.12	0.04	19	+ 0.07	0.08
5	+ 0.02	0.08	20	0.12	+ 0.03	5	0.15	+ 0.01	20	0.18	0.07
6	0.13	0.07	21	+ 0.08	0.06	6	0.16	− 0.02	21	0.25	− 0.04
7	0.21	0.05	22	0.00	0.08	7	0.14	0.04	22	0.27	0.00
8	0.25	− 0.01	23	− 0.09	0.08	8	0.09	0.06	23	0.24	+ 0.04
9	0.24	+ 0.02	24	0.17	0.06	9	− 0.04	0.07	24	0.18	0.06
10	0.20	0.05	25	0.21	+ 0.03	10	+ 0.02	0.07	25	0.10	0.08
11	+ 0.12	+ 0.07	26	− 0.20	− 0.01	11	+ 0.07	− 0.05	26	+ 0.01	+ 0.07
12	+ 0.04	0.07	27	0.16	0.05	12	0.11	− 0.03	27	− 0.07	0.05
13	− 0.04	0.06	28	− 0.06	0.08	13	0.12	+ 0.01	28	0.12	+ 0.03
14	0.10	0.04	29	+ 0.05	0.08	14	0.09	0.04	29	0.14	0.00
15	0.14	+ 0.01	30	0.15	0.06	15	+ 0.04	0.07	30	0.14	− 0.03
16	0.15	− 0.01	31	0.21	− 0.04	16	− 0.05	0.08	Dec. 1	0.13	0.05
17	0.14	0.04	Sept. 1	0.23	0.00	17	0.13	0.07	2	0.07	0.07
18	0.10	0.06	2	0.21	+ 0.04	18	0.19	0.05	3	− 0.01	0.08
19	− 0.04	0.07	3	0.15	0.06	19	0.21	+ 0.01	4	+ 0.05	0.07
20	+ 0.02	0.07	4	+ 0.08	0.07	20	0.18	− 0.03	5	0.10	0.05
21	+ 0.08	− 0.06	5	− 0.01	+ 0.07	21	− 0.10	− 0.06	6	+ 0.12	− 0.02
22	0.13	− 0.03	6	0.08	0.06	22	0.00	0.08	7	0.11	+ 0.02
23	0.14	0.00	7	0.13	+ 0.03	23	+ 0.11	0.08	8	+ 0.07	0.05
24	0.11	+ 0.04	8	0.15	0.00	24	0.20	0.06	9	− 0.01	0.08
25	+ 0.05	0.07	9	0.15	− 0.02	25	0.25	− 0.03	10	0.10	0.09
26	− 0.04	0.08	10	0.13	0.05	26	0.25	+ 0.01	11	0.19	0.07
27	0.13	0.07	11	0.09	0.07	27	0.21	0.04	12	0.24	+ 0.04
28	0.20	0.05	12	− 0.03	0.08	28	0.14	0.07	13	0.25	0.00
29	0.23	+ 0.01	13	+ 0.04	0.07	29	+ 0.06	0.08	14	0.20	− 0.04
30	0.20	− 0.03	14	0.10	0.05	30	− 0.03	0.07	15	− 0.11	0.07
31	− 0.13	− 0.06	15	+ 0.13	− 0.02	31	− 0.10	+ 0.05	16	+ 0.01	− 0.08
Aug. 1	− 0.03	0.08	16	0.13	+ 0.02	Nov. 1	0.13	+ 0.02	17	0.13	0.07
2	+ 0.08	0.08	17	0.09	0.05	2	0.15	− 0.01	18	0.22	0.05
3	0.17	0.06	18	+ 0.02	0.08	3	0.15	0.04	19	0.26	− 0.02
4	0.23	− 0.02	19	− 0.06	0.08	4	0.11	0.06	20	0.26	+ 0.02
5	0.24	+ 0.01	20	0.14	0.07	5	− 0.06	0.07	21	0.21	0.05
6	0.20	0.04	21	0.19	+ 0.04	6	0.00	0.07	22	0.14	0.08
7	0.14	0.07	22	0.20	0.00	7	+ 0.06	0.06	23	+ 0.05	0.07
8	+ 0.06	0.07	23	0.16	− 0.04	8	0.10	− 0.04	24	− 0.03	0.06
9	− 0.02	0.06	24	− 0.08	0.07	9	0.12	0.00	25	0.09	0.04
10	− 0.09	+ 0.05	25	+ 0.03	− 0.08	10	+ 0.10	+ 0.03	26	− 0.13	+ 0.01
11	0.13	+ 0.03	26	0.13	0.07	11	+ 0.05	0.06	27	0.13	− 0.02
12	0.15	0.00	27	0.21	0.05	12	− 0.03	0.08	28	0.11	0.05
13	0.14	− 0.03	28	0.24	− 0.02	13	0.12	0.08	29	0.07	0.07
14	0.11	0.06	29	0.23	+ 0.02	14	0.19	0.06	30	− 0.02	0.07
15	− 0.06	0.07	30	0.18	0.05	15	0.23	+ 0.03	31	+ 0.04	0.07
16	0.00	− 0.07	Oct. 1	+ 0.10	+ 0.07	16	− 0.22	− 0.01	32	+ 0.10	− 0.06

PART II

ASTRONOMICAL EPHEMERIS

FOR THE

MERIDIAN OF WASHINGTON.

FORMULÆ FOR THE REDUCTION OF THE POSITIONS OF THE FIXED STARS, USING THE NOTATION OF BESSEL, AND THE CONSTANTS OF STRUVE AND PETERS.

NOTATION.

τ, the time, reckoned in units of one year, from the beginning of the Besselian fictitious year, (1906, January $0^{d}.553$, Washington mean time),
α_0, δ_0, the star's mean right ascension and declination at the beginning of the fictitious year,
α, δ, the star's apparent right ascension and declination at the time τ,
μ, μ', the annual proper motion in right ascension and declination,
$\odot$, the Sun's true longitude,
☊, the longitude of the Moon's ascending node,
ω, the obliquity of the ecliptic,
Γ, the longitude of the Sun's perigee,
Γ', the longitude of the Moon's perigee,
☾, the Moon's mean longitude.

BESSELIAN STAR-NUMBERS.

$$\begin{aligned} A = \tau &- 0.342\,53 \sin \text{☊} \\ &+ 0.004\,10 \sin 2\,\text{☊} \\ &- 0.025\,19 \sin 2\odot \\ &+ 0.002\,93 \sin (\odot + 81^\circ\,53') \\ &- 0.004\,05 \sin 2\,\text{☾} \\ &+ 0.001\,35 \sin (\text{☾} - \Gamma') \end{aligned} \qquad \begin{aligned} A' = \tau &- 0.342\,53 \sin \text{☊} \\ &+ 0.004\,10 \sin 2\,\text{☊} \\ &- 0.025\,19 \sin 2\odot \\ &+ 0.002\,93 \sin (\odot + 81^\circ\,53') \end{aligned}$$

$$\begin{aligned} & \quad '' \\ B = &- 9.2241 \cos \text{☊} \\ &+ 0.0895 \cos 2\,\text{☊} \\ &- 0.5506 \cos 2\odot \\ &- 0.0092 \cos (\odot + 281^\circ\,19') \\ &- 0.0885 \cos 2\,\text{☾} \end{aligned} \qquad \begin{aligned} & \quad '' \\ B' = &- 9.2241 \cos \text{☊} \\ &+ 0.0895 \cos 2\,\text{☊} \\ &- 0.5506 \cos 2\odot \\ &- 0.0092 \cos (\odot + 281^\circ\,19') \end{aligned}$$

$$\begin{aligned} & \quad '' \\ C = &- 20.4451 \cos \omega \cos \odot \\ D = &- 20.4451 \sin \odot \\ E = &- 0.0445 \sin \text{☊} + 0''.0014 \sin 2\,\text{☊} - 0''.0032 \sin 2\odot \end{aligned}$$

BESSEL'S *Star-Constants.*

$a = 3^{s}.072\,84 + 1^{s}.336\,77 \sin \alpha_0 \tan \delta_0 =$ precession in right ascension
$b = \frac{1}{15} \cos \alpha_0 \tan \delta_0$
$c = \frac{1}{15} \cos \alpha_0 \sec \delta_0$
$d = \frac{1}{15} \sin \alpha_0 \sec \delta_0$
$a' = 20''.0515 \cos \alpha_0 =$ precession in declination
$b' = - \sin \alpha_0$
$c' = \tan \omega \cos \delta_0 - \sin \alpha_0 \sin \delta_0$
$d' = \cos \alpha_0 \sin \delta_0$

Reduction to Apparent Position.

$\alpha = \alpha_0 + \tau\mu + Aa + Bb + Cc + Dd + \frac{1}{15} E$ (in time)
$\delta = \delta_0 + \tau\mu' + Aa' + Bb' + Cc' + Dd'$ (in arc)

INDEPENDENT STAR-NUMBERS.

$f = 46''.0925\, A + E$ (in arc) $= 3^{s}.072\,84\, A + \frac{1}{15} E$ (in time)
$f' = 46''.0925\, A' + E$ (in arc) $= 3^{s}.072\,84\, A' + \frac{1}{15} E$ (in time)
$g \sin G = B$ $\qquad g' \sin G' = B'$ $\qquad h \sin H = C$
$g \cos G = 20''.0515\, A$ $\qquad g' \cos G' = 20''.0515\, A'$ $\qquad h \cos H = D$ $\qquad i = C \tan \omega$

Reduction to Apparent Position.

$\alpha = \alpha_0 + f + \tau\mu + \frac{1}{15} g \sin (G + \alpha_0) \tan \delta_0 + \frac{1}{15} h \sin (H + \alpha_0) \sec \delta_0$ (in time)
$\delta = \delta_0 + \tau\mu' + g \cos (G + \alpha_0) + h \cos (H + \alpha_0) \sin \delta_0 + i \cos \delta_0$ (in arc)

NOTES.—(1) The quantities A', B', f', g', and G' are to be used instead of A, B, f, g, and G whenever it is necessary to omit the short period terms, as, for example, in computing the ephemeris of a star at ten-day intervals.

(2) The independent star-numbers are more convenient, when only one or two apparent positions of a star are required, or when BESSEL's star-constants are not known with sufficient accuracy. Otherwise, the Besselian star-numbers are more convenient.

(3) In using the star-constants of the *British Association Catalogue*, a, b, c, d, a', b', c', d', with the star-numbers of this Ephemeris, the quantities to be formed are Ac, Bd, Ca, Db, $-Ac'$, $-Bd'$, $-Ca'$, $-Db'$.

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.	Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.
Jan. 0	− 9.29776	+ 0.8948	− 0.50876	+ 1.30407	Feb. 15	− 8.86564	+ 0.8434	− 1.19495	+ 1.05089
1	9.29484	0.8938	0.55083	1.30265	16	8.84448	0.8440	1.19990	1.03904
2	9.29192	0.8938	0.58905	1.30108	17	8.81882	0.8438	1.20465	1.02673
3	9.28803	0.8946	0.62405	1.29938	18	8.79057	0.8425	1.20921	1.01392
4	9.28251	0.8959	0.65631	1.29753	19	8.76200	0.8401	1.21359	1.00060
h (7.0) 5	− 9.27503	+ 0.8973	− 0.68621	+ 1.29553	h (10.0) 20	− 8.73608	+ 0.8368	− 1.21779	+ 0.98671
6	9.26562	0.8983	0.71405	1.29339	21	8.71542	0.8329	1.22182	0.97224
7	9.25462	0.8985	0.74008	1.29109	22	8.70209	0.8291	1.22568	0.95714
8	9.24257	0.8977	0.76450	1.28865	23	8.69592	0.8257	1.22937	0.94136
9	9.23042	0.8959	0.78749	1.28606	24	8.69496	0.8232	1.23289	0.92485
10	− 9.21911	+ 0.8932	− 0.80920	+ 1.28331	25	− 8.69609	+ 0.8220	− 1.23625	+ 0.90756
11	9.20944	0.8900	0.82974	1.28041	26	8.69609	0.8219	1.23945	0.88942
12	9.20172	0.8868	0.84921	1.27735	27	8.69161	0.8228	1.24249	0.87037
13	9.19582	0.8839	0.86772	1.27413	28	8.68034	0.8242	1.24538	0.85031
14	9.19114	0.8818	0.88534	1.27075	Mar. 1	8.66134	0.8255	1.24811	0.82915
15	− 9.18693	+ 0.8806	− 0.90214	+ 1.26720	2	− 8.63397	+ 0.8263	− 1.25069	+ 0.80678
16	9.18199	0.8805	0.91818	1.26348	3	8.59966	0.8261	1.25313	0.78307
17	9.17554	0.8812	0.93352	1.25960	4	8.56062	0.8248	1.25541	0.75786
18	9.16664	0.8822	0.94820	1.25555	5	8.52088	0.8224	1.25756	0.73098
19	9.15519	0.8831	0.96226	1.25132	6	8.48501	0.8191	1.25955	0.70220
h (8.0) 20	− 9.14126	+ 0.8836	− 0.97575	+ 1.24690	h (11.0) 7	− 8.45758	+ 0.8155	− 1.26141	+ 0.67125
21	9.12555	0.8831	0.98870	1.24230	8	8.44059	0.8120	1.26313	0.63780
22	9.10914	0.8816	1.00114	1.23752	9	8.43313	0.8093	1.26470	0.60143
23	9.09328	0.8790	1.01310	1.23254	10	8.43169	0.8077	1.26614	0.56162
24	9.07936	0.8757	1.02460	1.22737	11	8.42991	0.8073	1.26744	0.51767
25	− 9.06826	+ 0.8720	− 1.03566	+ 1.22201	12	− 8.42259	+ 0.8082	− 1.26861	+ 0.46864
26	9.06043	0.8684	1.04632	1.21643	13	8.40381	0.8098	1.26964	0.41324
27	9.05553	0.8653	1.05659	1.21065	14	8.36903	0.8118	1.27054	0.34961
28	9.05246	0.8632	1.06648	1.20465	15	8.31471	0.8136	1.27130	0.27492
29	9.04999	0.8621	1.07601	1.19844	16	8.23704	0.8147	1.27193	0.18454
30	− 9.04642	+ 0.8620	− 1.08520	+ 1.19199	17	− 8.13322	+ 0.8146	− 1.27243	+ 0.07016
31	9.04052	0.8627	1.09407	1.18532	18	7.99913	0.8134	1.27280	9.91435
Feb. 1	9.03133	0.8636	1.10262	1.17840	19	7.83187	0.8112	1.27304	9.66896
2	9.01862	0.8643	1.11087	1.17124	20	7.64147	0.8082	1.27315	+ 9.05024
3	9.00277	0.8643	1.11883	1.16382	21	7.46090	0.8051	1.27312	− 9.38372
h (9.0) 4	− 8.98471	+ 0.8633	− 1.12651	+ 1.15613	h (12.0) 22	− 7.35025	+ 0.8024	− 1.27297	− 9.77518
5	8.96577	0.8612	1.13392	1.14817	23	7.35793	0.8006	1.27268	9.97750
6	8.94783	0.8581	1.14107	1.13993	24	7.42325	0.7999	1.27227	0.11481
7	8.93232	0.8544	1.14797	1.13140	25	7.47712	0.8006	1.27172	0.21883
8	8.92044	0.8504	1.15462	1.12255	26	7.46538	0.8024	1.27105	0.30253
9	− 8.91217	+ 0.8467	− 1.16104	+ 1.11339	27	− 7.32428	+ 0.8049	− 1.27024	− 0.37253
10	8.90709	0.8438	1.16723	1.10390	28	− 6.69020	0.8076	1.26931	0.43265
11	8.90347	0.8419	1.17319	1.09406	29	+ 7.28556	0.8098	1.26824	0.48530
12	8.89922	0.8412	1.17894	1.08386	30	7.69373	0.8111	1.26704	0.53211
13	8.89237	0.8415	1.18448	1.07327	31	7.91540	0.8112	1.26571	0.57422
14	− 8.88144	+ 0.8424	− 1.18983	+ 1.06229	Apr. 1	+ 8.05805	+ 0.8102	− 1.26425	− 0.61247
15	− 8.86564	+ 0.8434	− 1.19495	+ 1.05089	2	+ 8.15229	+ 0.8082	− 1.26266	− 0.64747

E = − 0″.03 = − 0ˢ.002

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.	Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.
Apr. 1	+ 8.05805	+ 0.8102	− 1.26425	− 0.61247	May 17	+ 9.05316	+ 0.8287	− 1.01681	− 1.23092
2	8.15229	0.8082	1.26266	0.64747	18	9.05614	0.8295	1.00564	1.23569
3	8.21192	0.8057	1.26093	0.67973	19	9.05986	0.8315	0.99406	1.24029
4	8.24601	0.8033	1.25907	0.70961	20	9.06562	0.8342	0.98204	1.24471
5	8.26245	0.8014	1.25707	0.73744	21	9.07419	0.8374	0.96955	1.24897
$\overset{\mathrm{h}}{(13.0)}$ 6	+ 8.26764	+ 0.8005	− 1.25493	− 0.76345	$\overset{\mathrm{h}}{(16.0)}$ 22	+ 9.08561	+ 0.8404	− 0.95658	− 1.25306
7	8.27068	0.8009	1.25266	0.78785	23	9.09941	0.8428	0.94308	1.25700
8	8.28012	0.8025	1.25025	0.81082	24	9.11448	0.8442	0.92903	1.26077
9	8.30233	0.8052	1.24770	0.83251	25	9.12947	0.8444	0.91439	1.26439
10	8.34064	0.8083	1.24500	0.85303	26	9.14327	0.8436	0.89912	1.26786
11	+ 8.39129	+ 0.8113	− 1.24217	− 0.87250	27	+ 9.15503	+ 0.8419	− 0.88317	− 1.27118
12	8.44809	0.8137	1.23918	0.89099	28	9.16447	0.8398	0.86649	1.27435
13	8.50420	0.8151	1.23606	0.90860	29	9.17149	0.8379	0.84902	1.27738
14	8.55509	0.8154	1.23278	0.92540	30	9.17664	0.8366	0.83071	1.28026
15	8.59715	0.8145	1.22935	0.94144	31	9.18082	0.8363	0.81147	1.28300
16	+ 8.62931	+ 0.8127	− 1.22577	− 0.95678	June 1	+ 9.18509	+ 0.8372	− 0.79122	− 1.28561
17	8.65089	0.8107	1.22203	0.97146	2	9.19047	0.8390	0.76985	1.28807
18	8.66304	0.8088	1.21813	0.98554	3	9.19772	0.8416	0.74727	1.29040
19	8.66839	0.8076	1.21408	0.99905	4	9.20718	0.8443	0.72332	1.29260
20	8.66941	0.8076	1.20986	1.01203	5	9.21864	0.8468	0.69786	1.29467
$\overset{\mathrm{h}}{(14.0)}$ 21	+ 8.66978	+ 0.8088	− 1.20547	− 1.02448	$\overset{\mathrm{h}}{(17.0)}$ 6	+ 9.23144	+ 0.8485	− 0.67068	− 1.29660
22	8.67321	0.8111	1.20092	1.03647	7	9.24475	0.8491	0.64157	1.29841
23	8.68251	0.8143	1.19619	1.04801	8	9.25751	0.8485	0.61025	1.30008
24	8.69880	0.8177	1.19128	1.05912	9	9.26886	0.8469	0.57636	1.30163
25	8.72173	0.8208	1.18620	1.06983	10	9.27823	0.8447	0.53948	1.30306
26	+ 8.74865	+ 0.8232	− 1.18093	− 1.08015	11	+ 9.28538	+ 0.8422	− 0.49905	− 1.30436
27	8.77706	0.8245	1.17547	1.09011	12	9.29052	0.8400	0.45434	1.30553
28	8.80400	0.8245	1.16982	1.09971	13	9.29414	0.8385	0.40435	1.30658
29	8.82743	0.8236	1.16397	1.10898	14	9.29697	0.8382	0.34773	1.30751
30	8.84590	0.8219	1.15792	1.11792	15	9.29994	0.8389	0.28247	1.30831
May 1	+ 8.85914	+ 0.8201	− 1.15166	− 1.12656	16	+ 9.30378	+ 0.8406	− 0.20550	− 1.30899
2	8.86782	0.8186	1.14519	1.13491	17	9.30908	0.8428	0.11176	1.30955
3	8.87344	0.8180	1.13850	1.14297	18	9.31605	0.8450	9.99189	1.30999
4	8.87795	0.8185	1.13158	1.15075	19	9.32451	0.8467	9.82561	1.31031
5	8.88332	0.8202	1.12442	1.15827	20	9.33397	0.8476	9.55257	1.31051
$\overset{\mathrm{h}}{(15.0)}$ 6	+ 8.89159	+ 0.8230	− 1.11703	− 1.16554	$\overset{\mathrm{h}}{(18.0)}$ 21	+ 9.34370	+ 0.8473	− 8.64830	− 1.31059
7	8.90390	0.8263	1.10938	1.17258	22	9.35301	0.8459	+ 9.42798	1.31055
8	8.92044	0.8297	1.10147	1.17936	23	9.36124	0.8435	9.76358	1.31038
9	8.94057	0.8326	1.09330	1.18592	24	9.36801	0.8405	9.95050	1.31010
10	8.96246	0.8346	1.08484	1.19226	25	9.37324	0.8375	0.08066	1.30969
11	+ 8.98421	+ 0.8354	− 1.07610	− 1.19838	26	+ 9.37720	+ 0.8350	+ 0.18056	− 1.30917
12	9.00415	0.8351	1.06706	1.20429	27	9.38028	0.8334	0.26161	1.30852
13	9.02103	0.8339	1.05769	1.21000	28	9.38317	0.8328	0.32978	1.30775
14	9.03415	0.8322	1.04800	1.21551	29	9.38652	0.8334	0.38858	1.30686
15	9.04344	0.8303	1.03797	1.22083	30	9.39095	0.8348	0.44024	1.30585
16	+ 9.04934	+ 0.8291	− 1.02758	− 1.22597	July 1	+ 9.39674	+ 0.8365	+ 0.48629	− 1.30472
17	+ 9.05316	+ 0.8287	− 1.01681	− 1.23092	2	+ 9.40389	+ 0.8382	+ 0.52781	− 1.30346

$E = -0''.03 = -0^{s}.002$

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		Log *A*.	Log *B*.	Log *C*.	Log *D*.	Solar Day. (Sid. Hour.)		Log *A*.	Log *B*.	Log *C*.	Log *D*.
July	1	+9.39674	+0.8365	+0.48629	−1.30472	Aug.	16	+9.58628	+0.7740	+1.17765	−1.08621
	2	9.40389	0.8382	0.52781	1.30346		17	9.58963	0.7697	1.18298	1.07623
	3	9.41212	0.8392	0.56559	1.30208		18	9.59209	0.7649	1.18812	1.06587
	4	9.42090	0.8392	0.60023	1.30057		19	9.59366	0.7604	1.19308	1.05514
	5	9.42956	0.8380	0.63220	1.29894	h	20	9.59453	0.7566	1.19787	1.04400
h	6	+9.43753	+0.8356	+0.66187	−1.29718	(22.0)	21	+9.59503	+0.7541	+1.20249	−1.03244
(19.0)	7	9.44423	0.8324	0.68953	1.29529		22	9.59555	0.7530	1.20694	1.02043
	8	9.44951	0.8288	0.71542	1.29327		23	9.59649	0.7532	1.21122	1.00795
	9	9.45335	0.8254	0.73974	1.29112		24	9.59817	0.7543	1.21534	0.99496
	10	9.45594	0.8226	0.76266	1.28884		25	9.60074	0.7557	1.21930	0.98145
	11	+9.45782	+0.8207	+0.78432	−1.28643		26	+9.60417	+0.7567	+1.22310	−0.96737
	12	9.45954	0.8201	0.80484	1.28389		27	9.60825	0.7569	1.22675	0.95268
	13	9.46171	0.8205	0.82432	1.28120		28	9.61260	0.7558	1.23025	0.93735
	14	9.46473	0.8217	0.84285	1.27838		29	9.61679	0.7534	1.23360	0.92132
	15	9.46889	0.8231	0.86052	1.27542		30	9.62043	0.7497	1.23680	0.90454
	16	+9.47416	+0.8242	+0.87737	−1.27232		31	+9.62327	+0.7453	+1.23986	−0.88695
	17	9.48027	0.8244	0.89349	1.26907	Sept.	1	9.62513	0.7406	1.24278	0.86848
	18	9.48676	0.8235	0.90891	1.26567		2	9.62607	0.7364	1.24555	0.84905
	19	9.49311	0.8214	0.92369	1.26213		3	9.62633	0.7332	1.24818	0.82857
	20	9.49885	0.8183	0.93787	1.25843	h	4	9.62621	0.7315	1.25068	0.80693
h	21	+9.50361	+0.8143	+0.95150	−1.25458	(23.0)	5	+9.62612	+0.7313	+1.25304	−0.78402
(20.0)	22	9.50725	0.8102	0.96458	1.25058		6	9.62647	0.7323	1.25526	0.75968
	23	9.50987	0.8064	0.97717	1.24641		7	9.62752	0.7341	1.25735	0.73375
	24	9.51171	0.8034	0.98929	1.24208		8	9.62935	0.7360	1.25930	0.70603
	25	9.51323	0.8015	1.00097	1.23759		9	9.63195	0.7374	1.26113	0.67626
	26	+9.51495	+0.8009	+1.01222	−1.23292		10	+9.63508	+0.7377	+1.26282	−0.64415
	27	9.51730	0.8013	1.02307	1.22808		11	9.63841	0.7366	1.26438	0.60931
	28	9.52063	0.8024	1.03354	1.22307		12	9.64153	0.7341	1.26582	0.57128
	29	9.52498	0.8034	1.04365	1.21789		13	9.64415	0.7305	1.26713	0.52942
	30	9.53028	0.8040	1.05341	1.21249		14	9.64607	0.7263	1.26830	0.48293
	31	+9.53619	+0.8037	+1.06284	−1.20691		15	+9.64720	+0.7222	+1.26935	−0.43068
Aug.	1	9.54219	0.8021	1.07195	1.20114		16	9.64767	0.7187	1.27027	0.37110
	2	9.54784	0.7992	1.08076	1.19517		17	9.64771	0.7165	1.27106	0.30183
	3	9.55268	0.7953	1.08927	1.18899		18	9.64767	0.7159	1.27172	0.21917
	4	9.55645	0.7908	1.09751	1.18259		19	9.64793	0.7168	1.27226	0.11677
h	5	+9.55907	+0.7863	+1.10548	−1.17598	h	20	+9.64880	+0.7189	+1.27267	−9.98227
(21.0)	6	9.56064	0.7824	1.11318	1.16914	(0.0)	21	9.65047	0.7215	1.27296	9.78609
	7	9.56151	0.7795	1.12064	1.16206		22	9.65295	0.7241	1.27312	−9.41790
	8	9.56213	0.7778	1.12785	1.15474		23	9.65612	0.7258	1.27315	+8.94335
	9	9.56290	0.7775	1.13483	1.14716		24	9.65967	0.7264	1.27305	9.64092
	10	+9.56425	+0.7781	+1.14158	−1.13933		25	+9.66326	+0.7255	+1.27283	+9.89606
	11	9.56646	0.7792	1.14810	1.13122		26	9.66650	0.7232	1.27248	0.05569
	12	9.56958	0.7802	1.15442	1.12283		27	9.66905	0.7199	1.27200	0.17211
	13	9.57349	0.7804	1.16053	1.11415		28	9.67082	0.7162	1.27140	0.26376
	14	9.57785	0.7796	1.16643	1.10516		29	9.67177	0.7129	1.27066	0.33933
	15	+9.58225	+0.7774	+1.17214	−1.09585		30	+9.67204	+0.7105	+1.26980	+0.40360
	16	+9.58628	+0.7740	+1.17765	−1.08621	Oct.	1	+9.67189	+0.7096	+1.26880	+0.45950

$E = -0''.03 = -0^{s}.002$

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.	Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.
Oct. 1	+ 9.67189	+ 0.7096	+ 1.26880	+ 0.45950	Nov. 16	+ 9.75313	+ 0.7524	+ 1.04284	+ 1.21830
2	9.67167	0.7102	1.26767	0.50892	17	9.75671	0.7550	1.03213	1.22377
3	9.67176	0.7123	1.26641	0.55320	18	9.76053	0.7564	1.02101	1.22903
4	9.67242	0.7154	1.26502	0.59328	19	9.76427	0.7563	1.00945	1.23410
5	9.67382	0.7188	1.26349	0.62988	20	9.76765	0.7550	0.99743	1.23898
($1^h.0$) 6	+ 9.67596	+ 0.7219	+ 1.26183	+ 0.66354	($4^h.0$) 21	+ 9.77044	+ 0.7529	+ 0.98493	+ 1.24368
7	9.67867	0.7240	1.26003	0.69467	22	9.77261	0.7506	0.97192	1.24819
8	9.68170	0.7247	1.25809	0.72361	23	9.77416	0.7487	0.95836	1.25252
9	9.68467	0.7240	1.25602	0.75065	24	9.77525	0.7478	0.94422	1.25668
10	9.68730	0.7220	1.25380	0.77599	25	9.77612	0.7483	0.92945	1.26066
11	+ 9.68935	+ 0.7192	+ 1.25144	+ 0.79983	26	+ 9.77705	+ 0.7501	+ 0.91403	+ 1.26448
12	9.69072	0.7163	1.24893	0.82231	27	9.77832	0.7530	0.89789	1.26813
13	9.69145	0.7139	1.24628	0.84358	28	9.78010	0.7566	0.88098	1.27161
14	9.69175	0.7126	1.24348	0.86375	29	9.78248	0.7602	0.86324	1.27494
15	9.69190	0.7128	1.24052	0.88291	30	9.78537	0.7631	0.84459	1.27810
16	+ 9.69223	+ 0.7147	+ 1.23742	+ 0.90114	Dec. 1	+ 9.78865	+ 0.7648	+ 0.82496	+ 1.28111
17	9.69304	0.7178	1.23416	0.91852	2	9.79204	0.7652	0.80425	1.28396
18	9.69456	0.7216	1.23074	0.93512	3	9.79531	0.7643	0.78235	1.28666
19	9.69687	0.7255	1.22715	0.95099	4	9.79823	0.7622	0.75914	1.28921
20	9.69987	0.7288	1.22341	0.96618	5	9.80066	0.7595	0.73447	1.29161
($2^h.0$) 21	+ 9.70333	+ 0.7310	+ 1.21950	+ 0.98074	($5^h.0$) 6	+ 9.80252	+ 0.7568	+ 0.70815	+ 1.29386
22	9.70696	0.7318	1.21542	0.99471	7	9.80394	0.7548	0.67998	1.29597
23	9.71040	0.7311	1.21116	1.00812	8	9.80510	0.7538	0.64970	1.29793
24	9.71332	0.7293	1.20673	1.02100	9	9.80623	0.7542	0.61699	1.29974
25	9.71558	0.7270	1.20212	1.03339	10	9.80757	0.7558	0.58145	1.30142
26	+ 9.71710	+ 0.7247	+ 1.19732	+ 1.04532	11	+ 9.80933	+ 0.7584	+ 0.54258	+ 1.30295
27	9.71796	0.7231	1.19234	1.05680	12	9.81169	0.7614	0.49973	1.30434
28	9.71838	0.7227	1.18716	1.06787	13	9.81461	0.7642	0.45201	1.30558
29	9.71866	0.7239	1.18178	1.07854	14	9.81800	0.7661	0.39822	1.30669
30	9.71912	0.7265	1.17620	1.08882	15	9.82164	0.7668	0.33665	1.30766
31	+ 9.72004	+ 0.7302	+ 1.17040	+ 1.09875	16	+ 9.82529	+ 0.7662	+ 0.26471	+ 1.30849
Nov. 1	9.72160	0.7343	1.16440	1.10833	17	9.82869	0.7641	0.17826	1.30918
2	9.72386	0.7383	1.15817	1.11757	18	9.83164	0.7611	0.07002	1.30974
3	9.72668	0.7415	1.15171	1.12650	19	9.83403	0.7577	9.92530	1.31015
4	9.72987	0.7434	1.14501	1.13513	20	9.83583	0.7544	9.70651	1.31043
($3^h.0$) 5	+ 9.73314	+ 0.7439	+ 1.13807	+ 1.14346	($6^h.0$) 21	+ 9.83716	+ 0.7520	+ 9.24385	+ 1.31057
6	9.73617	0.7431	1.13088	1.15150	22	9.83821	0.7508	− 9.19912	1.31057
7	9.73874	0.7413	1.12343	1.15928	23	9.83924	0.7509	9.69163	1.31044
8	9.74074	0.7391	1.11571	1.16679	24	9.84048	0.7522	9.91642	1.31017
9	9.74216	0.7371	1.10771	1.17404	25	9.84207	0.7543	0.06370	1.30976
10	+ 9.74312	+ 0.7360	+ 1.09942	+ 1.18105	26	+ 9.84413	+ 0.7566	− 0.17338	+ 1.30921
11	9.74385	0.7363	1.09082	1.18782	27	9.84669	0.7585	0.26076	1.30853
12	9.74467	0.7380	1.08191	1.19436	28	9.84958	0.7594	0.33336	1.30770
13	9.74584	0.7410	1.07267	1.20067	29	9.85266	0.7589	0.39543	1.30674
14	9.74758	0.7448	1.06309	1.20676	30	9.85564	0.7570	0.44960	1.30564
15	+ 9.75004	+ 0.7488	+ 1.05315	+ 1.21263	31	+ 9.85840	+ 0.7538	− 0.49764	+ 1.30440
16	+ 9.75313	+ 0.7524	+ 1.04284	+ 1.21830	32	+ 9.86070	+ 0.7499	− 0.54076	+ 1.30301

$E = -0''.04 = -0^s.003$

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	*f*	*f'*	*G*		*H*		Log *g*.	Log *k*.	*i*	Log *i*.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
Jan.	0	−0.0001	−0.612	−0.619	116 53.4	7 47.9	350 53.9	23 23.6	+0.94447	+1.30957	−1.40	−0.1460
	1	+0.0026	0.608	0.609	116 47.3	7 47.2	349 57.5	23 19.8	0.94310	1.30935	1.54	0.1881
	2	0.0053	0.604	0.599	116 38.1	7 46.5	349 1.0	23 16.1	0.94249	1.30911	1.68	0.2263
	3	0.0081	0.598	0.588	116 23.2	7 45.5	348 4.5	23 12.3	0.94236	1.30885	1.82	0.2613
h	4	0.0108	0.591	0.578	116 1.8	7 44.1	347 7.9	23 8.5	0.94235	1.30857	1.97	0.2936
(7.0)	5	0.0136	−0.581	−0.568	115 34.2	7 42.3	346 11.3	23 4.8	+0.94205	+1.30827	−2.11	−0.3235
	6	0.0163	0.568	0.558	115 2.5	7 40.2	345 14.6	23 1.0	0.94115	1.30795	2.24	0.3513
	7	0.0190	0.554	0.548	114 28.7	7 37.9	344 17.8	22 57.2	0.93940	1.30761	2.38	0.3773
	8	0.0218	0.539	0.538	113 55.3	7 35.7	343 20.8	22 53.4	0.93674	1.30726	2.52	0.4017
	9	0.0245	0.524	0.528	113 25.2	7 33.7	342 23.8	22 49.6	0.93326	1.30689	2.66	0.4247
	10	0.0272	−0.511	−0.518	113 0.4	7 32.0	341 26.7	22 45.8	+0.92923	+1.30649	−2.80	−0.4464
	11	0.0300	0.499	0.508	112 42.1	7 30.8	340 29.6	22 42.0	0.92507	1.30608	2.93	0.4670
	12	0.0327	0.491	0.498	112 29.6	7 29.9	339 32.3	22 38.1	0.92112	1.30565	3.07	0.4865
	13	0.0355	0.484	0.488	112 21.2	7 29.4	338 34.8	22 34.3	0.91781	1.30521	3.20	0.5050
	14	0.0382	0.480	0.479	112 14.1	7 28.9	337 37.3	22 30.5	0.91532	1.30475	3.33	0.5226
	15	0.0409	−0.474	−0.469	112 5.6	7 28.4	336 39.7	22 26.6	+0.91375	+1.30427	−3.46	−0.5394
	16	0.0437	0.469	0.460	111 52.3	7 27.5	335 41.9	22 22.8	0.91296	1.30377	3.59	0.5554
	17	0.0464	0.462	0.450	111 33.0	7 26.2	334 44.0	22 18.9	0.91263	1.30327	3.72	0.5708
	18	0.0491	0.453	0.441	111 6.4	7 24.4	333 46.0	22 15.1	0.91235	1.30276	3.85	0.5854
h	19	0.0519	0.441	0.431	110 33.7	7 22.2	332 47.9	22 11.2	0.91173	1.30222	3.98	0.5995
(8.0)	20	0.0546	−0.427	−0.422	109 56.9	7 19.8	331 49.5	22 7.3	+0.91043	+1.30167	−4.10	−0.6130
	21	0.0574	0.412	0.413	109 18.7	7 17.2	330 51.1	22 3.4	0.90824	1.30111	4.23	0.6260
	22	0.0601	0.397	0.404	108 42.4	7 14.8	329 52.5	21 59.5	0.90514	1.30053	4.35	0.6384
	23	0.0628	0.383	0.395	108 10.8	7 12.7	328 53.8	21 55.6	0.90125	1.29995	4.47	0.6503
	24	0.0656	0.371	0.386	107 46.2	7 11.1	327 54.9	21 51.7	0.89692	1.29936	4.59	0.6618
	25	0.0683	−0.361	−0.378	107 29.3	7 10.0	326 55.9	21 47.7	+0.89251	+1.29875	−4.71	−0.6729
	26	0.0710	0.355	0.369	107 19.8	7 9.3	325 56.7	21 43.8	0.88852	1.29814	4.83	0.6836
	27	0.0738	0.351	0.360	107 15.7	7 9.0	324 57.4	21 39.8	0.88531	1.29752	4.94	0.6938
	28	0.0765	0.348	0.352	107 13.6	7 8.9	323 57.9	21 35.9	0.88308	1.29689	5.05	0.7037
	29	0.0793	0.346	0.344	107 10.4	7 8.7	322 58.3	21 31.9	0.88190	1.29625	5.17	0.7133
	30	0.0820	−0.344	−0.335	107 2.6	7 8.2	321 58.5	21 27.9	+0.88153	+1.29561	−5.28	−0.7225
	31	0.0847	0.339	0.327	106 48.1	7 7.2	320 58.5	21 23.9	0.88164	1.29497	5.39	0.7313
Feb.	1	0.0875	0.332	0.319	106 26.2	7 5.7	319 58.4	21 19.9	0.88173	1.29431	5.49	0.7399
	2	0.0902	0.322	0.311	105 57.8	7 3.9	318 58.2	21 15.9	0.88136	1.29366	5.60	0.7481
h	3	0.0930	0.311	0.303	105 25.2	7 1.7	317 57.8	21 11.9	0.88021	1.29300	5.70	0.7561
(9.0)	4	0.0957	−0.298	−0.296	104 51.1	6 59.4	316 57.2	21 7.8	+0.87805	+1.29234	−5.80	−0.7638
	5	0.0984	0.286	0.288	104 18.6	6 57.2	315 56.4	21 3.8	0.87491	1.29168	5.90	0.7712
	6	0.1012	0.274	0.280	103 50.9	6 55.4	314 55.5	20 59.7	0.87095	1.29102	6.00	0.7783
	7	0.1039	0.265	0.273	103 29.5	6 54.0	313 54.5	20 55.6	0.86653	1.29036	6.10	0.7852
	8	0.1066	0.258	0.265	103 15.4	6 53.0	312 53.2	20 51.5	0.86213	1.28969	6.19	0.7919
	9	0.1094	−0.253	−0.258	103 7.4	6 52.5	311 51.8	20 47.4	+0.85820	+1.28903	−6.28	−0.7983
	10	0.1121	0.250	0.251	103 3.6	6 52.2	310 50.2	20 43.3	0.85516	1.28838	6.37	0.8045
	11	0.1149	0.248	0.244	103 0.6	6 52.0	309 48.5	20 39.2	0.85321	1.28773	6.46	0.8104
	12	0.1176	0.245	0.237	102 54.4	6 51.6	308 46.6	20 35.1	0.85232	1.28708	6.55	0.8162
	13	0.1203	0.242	0.230	102 42.3	6 50.8	307 44.5	20 31.0	0.85224	1.28645	6.63	0.8217
	14	0.1231	−0.236	−0.223	102 22.4	6 49.5	306 42.3	20 26.8	+0.85259	+1.28581	−6.71	−0.8271
	15	0.1258	−0.227	−0.216	101 55.0	6 47.7	305 40.0	20 22.7	+0.85286	+1.28517	−6.79	−0.8322

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f	f′	G		H		Log g.	Log h.	i	Log i.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
Feb.	15	0.1258	−0.227	−0.216	101 55.0	6 47.7	305 40.0	20 22.7	+0.85286	+1.28517	−6.79	−0.8322
	16	0.1285	0.217	0.210	101 21.0	6 45.4	304 37.4	20 18.5	0.85260	1.28455	6.87	0.8371
	17	0.1313	0.204	0.203	100 43.1	6 42.9	303 34.7	20 14.3	0.85146	1.28393	6.95	0.8419
	18	0.1340	0.192	0.197	100 5.2	6 40.3	302 31.9	20 10.1	0.84930	1.28333	7.02	0.8465
h	19	0.1368	0.179	0.190	99 30.5	6 38.0	301 28.9	20 5.9	0.84614	1.28274	7.09	0.8508
(10.0)	20	0.1395	−0.169	−0.184	99 2.1	6 36.1	300 25.7	20 1.7	+0.84223	+1.28216	−7.16	−0.8550
	21	0.1422	0.161	0.178	98 41.8	6 34.8	299 22.5	19 57.5	0.83797	1.28159	7.23	0.8591
	22	0.1450	0.157	0.172	98 30.7	6 34.1	298 19.1	19 53.3	0.83386	1.28103	7.29	0.8629
	23	0.1477	0.155	0.166	98 27.5	6 33.8	297 15.5	19 49.0	0.83042	1.28049	7.35	0.8666
	24	0.1504	0.154	0.160	98 29.3	6 34.0	296 11.8	19 44.8	0.82801	1.27996	7.41	0.8701
	25	0.1532	−0.154	−0.154	98 32.0	6 34.1	295 8.0	19 40.5	+0.82680	+1.27945	−7.47	−0.8735
	26	0.1559	0.154	0.148	98 32.1	6 34.1	294 4.1	19 36.3	0.82676	1.27895	7.53	0.8767
	27	0.1587	0.153	0.142	98 25.9	6 33.8	293 0.1	19 32.0	0.82753	1.27847	7.58	0.8797
	28	0.1614	0.149	0.137	98 11.6	6 32.8	291 56.0	19 27.7	0.82865	1.27801	7.63	0.8826
Mar.	1	0.1641	0.143	0.131	97 49.3	6 31.3	290 51.9	19 23.5	0.82959	1.27757	7.68	0.8854
	2	0.1669	−0.134	−0.125	97 20.3	6 29.4	289 47.4	19 19.2	+0.82988	+1.27713	−7.73	−0.8879
	3	0.1696	0.124	0.120	96 47.3	6 27.2	288 42.7	19 14.9	0.82919	1.27671	7.77	0.8904
	4	0.1724	0.114	0.114	96 13.7	6 24.9	287 38.5	19 10.6	0.82737	1.27633	7.81	0.8927
	5	0.1751	0.104	0.109	95 43.2	6 22.9	286 33.9	19 6.3	0.82452	1.27597	7.85	0.8948
h	6	0.1778	0.096	0.104	95 18.6	6 21.2	285 29.3	19 2.0	0.82096	1.27562	7.89	0.8968
(11.0)	7	0.1806	−0.090	−0.098	95 1.6	6 20.1	284 24.6	18 57.6	+0.81715	+1.27529	−7.93	−0.8987
	8	0.1833	0.087	0.093	94 52.4	6 19.5	283 19.8	18 53.3	0.81358	1.27499	7.95	0.9004
	9	0.1860	0.085	0.088	94 49.2	6 19.3	282 15.0	18 49.0	0.81082	1.27471	7.98	0.9020
	10	0.1888	0.085	0.083	94 49.3	6 19.3	281 10.2	18 44.7	0.80919	1.27445	8.01	0.9034
	11	0.1915	0.085	0.077	94 48.4	6 19.2	280 5.3	18 40.4	0.80883	1.27421	8.03	0.9047
	12	0.1943	−0.083	−0.072	94 43.0	6 18.9	279 0.4	18 36.0	+0.80962	+1.27400	−8.05	−0.9059
	13	0.1970	0.080	0.067	94 30.1	6 18.0	277 55.4	18 31.7	0.81117	1.27381	8.07	0.9069
	14	0.1997	0.074	0.062	94 8.2	6 16.5	276 50.3	18 27.4	0.81296	1.27364	8.09	0.9078
	15	0.2025	0.065	0.057	93 38.2	6 14.5	275 45.5	18 23.0	0.81449	1.27350	8.10	0.9086
	16	0.2052	0.055	0.052	93 2.1	6 12.1	274 40.5	18 18.7	0.81527	1.27338	8.11	0.9092
	17	0.2079	−0.044	−0.047	92 23.5	6 9.6	273 35.5	18 14.4	+0.81502	+1.27329	−8.12	−0.9097
	18	0.2107	0.033	0.042	91 45.7	6 7.0	272 30.5	18 10.0	0.81365	1.27322	8.13	0.9101
	19	0.2134	0.023	0.037	91 12.3	6 4.8	271 25.5	18 5.7	0.81127	1.27317	8.13	0.9103
	20	0.2162	0.016	0.032	90 46.9	6 3.1	270 20.6	18 1.4	0.80828	1.27315	8.14	0.9104
h	21	0.2189	0.011	0.027	90 31.2	6 2.1	269 15.7	17 57.1	0.80514	1.27316	8.13	0.9104
(12.0)	22	0.2216	−0.009	−0.022	90 24.3	6 1.6	268 10.8	17 52.7	+0.80240	+1.27319	−8.13	−0.9102
	23	0.2244	0.009	0.017	90 24.9	6 1.7	267 5.9	17 48.4	0.80056	1.27324	8.13	0.9099
	24	0.2271	0.010	0.012	90 29.0	6 1.9	266 1.1	17 44.1	0.79996	1.27332	8.12	0.9095
	25	0.2298	0.011	0.007	90 32.7	6 2.2	264 56.4	17 39.8	0.80066	1.27342	8.11	0.9090
	26	0.2326	0.011	−0.002	90 31.7	6 2.1	263 51.8	17 35.5	0.80245	1.27355	8.10	0.9083
	27	0.2353	−0.009	+0.003	90 22.8	6 1.5	262 47.2	17 31.1	+0.80493	+1.27370	−8.08	−0.9075
	28	0.2381	−0.004	0.008	90 5.3	6 0.4	261 42.8	17 26.8	0.80755	1.27387	8.06	0.9066
	29	0.2408	+0.004	0.013	89 39.4	5 58.6	260 38.4	17 22.6	0.80976	1.27406	8.04	0.9055
	30	0.2435	0.013	0.019	89 7.4	5 56.5	259 34.1	17 18.3	0.81112	1.27428	8.02	0.9043
	31	0.2463	0.023	0.024	88 32.4	5 54.2	258 29.9	17 14.0	0.81135	1.27452	8.00	0.9030
Apr.	1	0.2490	+0.033	+0.029	87 58.1	5 51.9	257 25.9	17 9.7	+0.81048	+1.27479	−7.97	−0.9015
	2	0.2518	+0.041	+0.034	87 27.9	5 49.9	256 21.9	17 5.5	+0.80866	+1.27507	−7.94	−0.8999

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f	f′	G		H		Log g.	Log h.	i	Log i.
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
	y	s	s	° ′	h m	° ′	h m			″	
Apr. 1	0.2490	+0.033	+0.029	87 58.1	5 51.9	257 25.9	17 9.7	+0.81048	+1.27479	−7.97	−0.9015
2	0.2518	0.041	0.034	87 27.9	5 49.9	256 21.9	17 5.5	0.80866	1.27507	7.94	0.8999
3	0.2545	0.048	0.039	87 4.5	5 48.3	255 18.1	17 1.2	0.80631	1.27538	7.91	0.8982
4	0.2572	0.052	0.045	86 49.1	5 47.3	254 14.5	16 57.0	0.80393	1.27570	7.88	0.8963
5	0.2600	0.054	0.050	86 40.9	5 46.7	253 11.0	16 52.7	0.80209	1.27605	7.84	0.8943
h (13.0) 6	0.2627	+0.055	+0.056	86 38.1	5 46.5	252 7.6	16 48.5	+0.80123	+1.27642	−7.80	−0.8922
7	0.2654	0.055	0.061	86 36.9	5 46.5	251 4.3	16 44.3	0.80166	1.27680	7.76	0.8899
8	0.2682	0.056	0.067	86 33.2	5 46.2	250 1.3	16 40.1	0.80333	1.27720	7.72	0.8875
9	0.2709	0.059	0.072	86 23.7	5 45.6	248 58.3	16 35.9	0.80601	1.27763	7.67	0.8849
10	0.2737	0.065	0.078	86 5.5	5 44.4	247 55.5	16 31.7	0.80927	1.27807	7.63	0.8822
11	0.2764	+0.074	+0.084	85 38.5	5 42.6	246 52.9	16 27.4	+0.81256	+1.27852	−7.58	−0.8794
12	0.2791	0.084	0.089	85 3.7	5 40.2	245 50.5	16 23.3	0.81533	1.27899	7.52	0.8764
13	0.2819	0.096	0.095	84 24.2	5 37.6	244 48.2	16 19.2	0.81722	1.27948	7.47	0.8733
14	0.2846	0.108	0.101	83 43.0	5 34.9	243 46.1	16 15.1	0.81799	1.27998	7.41	0.8700
15	0.2873	0.119	0.107	83 4.1	5 32.3	242 44.2	16 10.9	0.81767	1.28049	7.35	0.8666
16	0.2901	+0.129	+0.113	82 30.7	5 30.0	241 42.4	16 6.8	+0.81646	+1.28102	−7.29	−0.8630
17	0.2928	0.135	0.119	82 5.9	5 28.4	240 40.9	16 2.7	0.81480	1.28156	7.23	0.8593
18	0.2956	0.139	0.125	81 50.5	5 27.4	239 39.5	15 58.6	0.81322	1.28211	7.17	0.8554
19	0.2983	0.141	0.131	81 43.2	5 26.9	238 38.3	15 54.6	0.81215	1.28267	7.10	0.8513
20	0.3010	0.141	0.137	81 42.0	5 26.8	237 37.2	15 50.5	0.81213	1.28325	7.03	0.8471
h (14.0) 21	0.3038	+0.141	+0.144	81 43.0	5 26.9	236 36.5	15 46.4	+0.81331	+1.28383	−6.96	−0.8427
22	0.3065	0.143	0.150	81 41.8	5 26.8	235 35.8	15 42.4	0.81570	1.28442	6.89	0.8382
23	0.3092	0.146	0.157	81 34.7	5 26.3	234 35.4	15 38.4	0.81897	1.28502	6.81	0.8334
24	0.3120	0.151	0.163	81 19.8	5 25.3	233 35.2	15 34.4	0.82268	1.28562	6.74	0.8285
25	0.3147	0.160	0.170	80 55.9	5 23.7	232 35.2	15 30.4	0.82628	1.28623	6.66	0.8234
26	0.3175	+0.170	+0.177	80 24.8	5 21.7	231 35.3	15 26.4	+0.82928	+1.28685	−6.58	−0.8182
27	0.3202	0.182	0.184	79 48.5	5 19.2	230 35.7	15 22.4	0.83137	1.28747	6.50	0.8127
28	0.3229	0.193	0.191	79 10.4	5 16.7	229 36.3	15 18.4	0.83234	1.28810	6.41	0.8071
29	0.3257	0.204	0.198	78 33.8	5 14.3	228 37.1	15 14.5	0.83229	1.28873	6.33	0.8012
30	0.3284	0.213	0.205	78 2.2	5 12.1	227 38.1	15 10.5	0.83148	1.28936	6.24	0.7952
May 1	0.3312	+0.220	+0.212	77 37.7	5 10.5	226 39.3	15 6.6	+0.83032	+1.28999	−6.15	−0.7889
2	0.3339	0.224	0.219	77 20.6	5 9.4	225 40.7	15 2.7	0.82931	1.29062	6.06	0.7824
3	0.3366	0.227	0.227	77 10.0	5 8.7	224 42.3	14 58.8	0.82901	1.29126	5.97	0.7757
4	0.3394	0.230	0.234	77 3.1	5 8.2	223 44.1	14 54.9	0.82972	1.29189	5.87	0.7688
5	0.3421	0.233	0.242	76 56.8	5 7.8	222 46.1	14 51.1	0.83161	1.29252	5.78	0.7617
h (15.0) 6	0.3448	+0.237	+0.249	76 47.1	5 7.1	221 48.4	14 47.2	+0.83462	+1.29315	−5.68	−0.7543
7	0.3476	0.244	0.257	76 31.1	5 6.1	220 50.7	14 43.4	0.83841	1.29378	5.58	0.7466
8	0.3503	0.254	0.265	76 7.1	5 4.5	219 53.4	14 39.6	0.84253	1.29440	5.48	0.7387
9	0.3531	0.266	0.273	75 34.8	5 2.3	218 56.2	14 35.7	0.84646	1.29502	5.38	0.7305
10	0.3558	0.280	0.281	74 56.1	4 59.7	217 59.2	14 32.0	0.84974	1.29564	5.27	0.7221
11	0.3585	+0.294	+0.289	74 13.7	4 56.9	217 2.3	14 28.2	+0.85209	+1.29625	−5.17	−0.7134
12	0.3613	0.308	0.297	73 31.0	4 54.1	216 5.7	14 24.4	0.85336	1.29685	5.06	0.7043
13	0.3640	0.320	0.305	72 51.3	4 51.4	215 9.2	14 20.6	0.85364	1.29745	4.95	0.6949
14	0.3667	0.330	0.314	72 17.7	4 49.2	214 12.9	14 16.9	0.85322	1.29804	4.84	0.6852
15	0.3695	0.337	0.322	71 51.9	4 47.5	213 16.7	14 13.1	0.85246	1.29862	4.73	0.6752
16	0.3722	+0.342	+0.331	71 35.1	4 46.3	212 20.8	14 9.4	+0.85192	+1.29920	−4.62	−0.6648
17	0.3750	+0.345	+0.339	71 25.1	4 45.7	211 25.0	14 5.7	+0.85199	+1.29976	−4.51	−0.6541

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f	f′	G		H		Log g.	Log h.	i	Log i.
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
	y	s	s	° ′	h m	° ′	h m			″	
May 17	0.3750	+0.345	+0.339	71 25.1	4 45.7	211 25.0	14 5.7	+0.85199	+1.29976	−4.51	−0.6541
18	0.3777	0.347	0.348	71 19.9	4 45.3	210 29.3	14 2.0	0.85301	1.30032	4.39	0.6429
19	0.3804	0.350	0.356	71 15.6	4 45.0	209 33.8	13 58.3	0.85512	1.30086	4.28	0.6313
20	0.3832	0.355	0.365	71 8.3	4 44.6	208 38.5	13 54.6	0.85816	1.30140	4.16	0.6193
21	0.3859	0.362	0.374	70 55.2	4 43.7	207 43.4	13 50.9	0.86191	1.30192	4.04	0.6068
h (16.0) 22	0.3886	+0.372	+0.383	70 34.5	4 42.3	206 48.3	13 47.2	+0.86585	+1.30244	−3.92	−0.5938
23	0.3914	0.384	0.392	70 5.9	4 40.4	205 53.5	13 43.6	0.86953	1.30294	3.80	0.5803
24	0.3941	0.398	0.401	69 30.8	4 38.1	204 58.7	13 39.9	0.87256	1.30342	3.68	0.5663
25	0.3969	0.412	0.410	68 52.1	4 35.5	204 4.2	13 36.3	0.87467	1.30390	3.56	0.5516
26	0.3996	0.425	0.420	68 12.5	4 32.8	203 9.7	13 32.6	0.87574	1.30436	3.44	0.5364
27	0.4023	+0.437	+0.429	67 35.2	4 30.3	202 15.4	13 29.0	+0.87599	+1.30480	−3.31	−0.5204
28	0.4051	0.446	0.438	67 3.0	4 28.2	201 21.2	13 25.4	0.87562	1.30524	3.19	0.5037
29	0.4078	0.454	0.448	66 37.4	4 26.5	200 27.2	13 21.8	0.87509	1.30566	3.06	0.4863
30	0.4106	0.459	0.457	66 18.8	4 25.3	199 33.2	13 18.2	0.87483	1.30606	2.94	0.4680
31	0.4133	0.464	0.467	66 5.7	4 24.4	198 39.4	13 14.6	0.87526	1.30645	2.81	0.4487
June 1	0.4160	+0.468	+0.476	65 55.6	4 23.7	197 45.7	13 11.0	+0.87667	+1.30682	−2.68	−0.4285
2	0.4188	0.474	0.486	65 45.2	4 23.0	196 52.2	13 7.5	0.87920	1.30718	2.55	0.4071
3	0.4215	0.482	0.496	65 31.3	4 22.1	195 58.7	13 3.9	0.88247	1.30752	2.42	0.3845
4	0.4242	0.493	0.505	65 11.2	4 20.7	195 5.3	13 0.4	0.88641	1.30784	2.29	0.3606
5	0.4270	0.506	0.515	64 43.8	4 18.9	194 12.0	12 56.8	0.89047	1.30815	2.16	0.3351
h (17.0) 6	0.4297	+0.521	+0.525	64 9.6	4 16.6	193 18.8	12 53.3	+0.89422	+1.30843	−2.03	−0.3079
7	0.4325	0.538	0.535	63 29.8	4 14.0	192 25.7	12 49.7	0.89730	1.30871	1.90	0.2788
8	0.4352	0.554	0.545	62 47.3	4 11.2	191 32.6	12 46.2	0.89947	1.30896	1.77	0.2475
9	0.4379	0.568	0.555	62 5.3	4 8.4	190 39.7	12 42.6	0.90065	1.30920	1.64	0.2136
10	0.4407	0.581	0.565	61 26.9	4 5.8	189 46.8	12 39.1	0.90098	1.30941	1.50	0.1767
11	0.4434	+0.591	+0.575	60 54.6	4 3.6	188 53.9	12 35.6	+0.90072	+1.30961	−1.37	−0.1363
12	0.4461	0.598	0.585	60 29.9	4 2.0	188 1.1	12 32.1	0.90028	1.30980	1.24	0.0916
13	0.4489	0.603	0.595	60 12.7	4 0.8	187 8.3	12 28.6	0.90008	1.30996	1.10	0.0416
14	0.4516	0.607	0.605	60 1.8	4 0.1	186 15.6	12 25.0	0.90051	1.31010	0.97	9.9850
15	0.4544	0.611	0.615	59 54.0	3 59.6	185 23.0	12 21.5	0.90180	1.31022	0.83	9.9197
16	0.4571	+0.616	+0.625	59 46.6	3 59.1	184 30.3	12 18.0	+0.90401	+1.31034	−0.70	−9.8427
17	0.4598	0.624	0.635	59 35.8	3 58.4	183 37.7	12 14.5	0.90700	1.31043	0.56	9.7490
18	0.4626	0.634	0.645	59 19.4	3 57.2	182 45.1	12 11.0	0.91044	1.31050	0.43	9.6291
19	0.4653	0.646	0.655	58 56.0	3 55.7	181 52.6	12 7.5	0.91396	1.31055	0.29	9.4629
20	0.4680	0.661	0.666	58 25.7	3 53.7	181 0.0	12 4.0	0.91713	1.31058	0.16	9.1898
h (18.0) 21	0.4708	+0.676	+0.676	57 50.2	3 51.3	180 7.5	12 0.5	+0.91963	+1.31059	−0.02	−8.2855
22	0.4735	0.691	0.686	57 11.6	3 48.8	179 15.0	11 57.0	0.92131	1.31059	+0.12	+9.0652
23	0.4763	0.704	0.696	56 33.2	3 46.2	178 22.4	11 53.5	0.92208	1.31056	0.25	9.4008
24	0.4790	0.715	0.706	55 57.6	3 43.8	177 29.9	11 50.0	0.92214	1.31051	0.39	9.5877
25	0.4817	0.724	0.716	55 27.4	3 41.8	176 37.4	11 46.5	0.92175	1.31045	0.52	9.7179
26	0.4845	+0.730	+0.727	55 3.3	3 40.2	175 44.8	11 43.0	+0.92133	+1.31037	+0.66	+9.8178
27	0.4872	0.735	0.737	54 45.8	3 39.1	174 52.2	11 39.5	0.92127	1.31026	0.79	9.8989
28	0.4899	0.740	0.747	54 33.0	3 38.2	173 59.7	11 36.0	0.92188	1.31014	0.93	9.9670
29	0.4927	0.746	0.757	54 22.6	3 37.5	173 7.0	11 32.5	0.92339	1.31000	1.06	0.0258
30	0.4954	0.754	0.767	54 11.2	3 36.7	172 14.4	11 29.0	0.92580	1.30984	1.20	0.0775
July 1	0.4982	+0.764	+0.777	53 56.0	3 35.7	171 21.7	11 25.5	+0.92899	+1.30967	+1.33	+0.1236
2	0.5009	+0.777	+0.787	53 35.3	3 34.4	170 29.0	11 21.9	+0.93253	+1.30948	+1.46	+0.1651

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f	f'	G		H		Log g.	Log h.	i	Log i.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
July	1	0.4982	+0.764	+0.777	53 56.0	3 35.7	171 21.7	11 25.5	+0.92899	+1.30967	+1.33	+0.1235
	2	0.5009	0.777	0.787	53 35.3	3 34.4	170 29.0	11 21.9	0.93253	1.30948	1.46	0.1651
	3	0.5036	0.792	0.797	53 7.8	3 32.5	169 36.3	11 18.4	0.93611	1.30926	1.60	0.2028
	4	0.5064	0.808	0.807	52 34.3	3 30.3	168 43.5	11 14.9	0.93930	1.30903	1.73	0.2375
	5	0.5091	0.824	0.817	51 56.5	3 27.8	167 50.6	11 11.4	0.94177	1.30878	1.86	0 2605
h	6	0.5119	+0.839	+0.827	51 16.8	3 25.1	166 57.7	11 7.9	+0.94342	+1.30852	+1.99	+0 2991
(19.0)	7	0.5146	0.853	0.837	50 38.4	3 22.6	166 4.7	11 4.3	0.94415	1.30824	2.12	0.3268
	8	0.5173	0.863	0.847	50 3.9	3 20.3	165 11.6	11 0.8	0.94416	1.30794	2.25	0.3527
	9	0.5201	0.871	0.857	49 35.4	3 18.4	164 18.5	10 57.2	0.94375	1.30762	2.38	0.3770
	10	0.5228	0.876	0.866	49 14.1	3 17.0	163 25.2	10 53.7	0.94321	1.30729	2.51	0.3999
	11	0.5255	+0.880	+0.876	48 59.8	3 16.0	162 31.9	10 50.1	+0.94298	+1.30694	+2.64	+0.4216
	12	0.5283	0.883	0.885	48 50.6	3 15.4	161 38.5	10 46.6	0.94335	1.30657	2.77	0.4421
	13	0.5310	0.888	0.895	48 43.8	3 14.9	160 44.9	10 43.0	0.94455	1.30619	2.89	0.4616
	14	0.5338	0.894	0.905	48 36.5	3 14.4	159 51.3	10 39.4	0.94652	1.30580	3.02	0.4801
	15	0.5365	0.902	0.914	48 25.6	3 13.7	158 57.6	10 35.8	0.94911	1.30539	3.15	0.4978
	16	0.5392	+0.914	+0.923	48 9.0	3 12.6	158 3.7	10 32.2	+0.95206	+1.30496	+3.27	+0.5146
	17	0.5420	0.927	0.933	47 46.0	3 11.1	157 9.7	10 28.6	0.95493	1.30452	3.39	0.5307
	18	0.5447	0.940	0.942	47 17.0	3 9.1	156 15.6	10 25.0	0.95742	1.30407	3.52	0.5462
	19	0.5474	0.954	0.951	46 43.7	3 6.9	155 21.4	10 21.4	0.95926	1.30360	3.64	0.5609
	20	0.5502	0.967	0.960	46 8.4	3 4.6	154 27.1	10 17.8	0.96031	1.30312	3.76	0.5751
h	21	0.5529	+0.978	+0.969	45 34.0	3 2.3	153 32.6	10 14.2	+0.96059	+1.30263	+3.88	+0.5887
(20.0)	22	0.5557	0.986	0.978	45 3.2	3 0.2	152 38.0	10 10.5	0.96030	1.30212	4.00	0.6018
	23	0.5584	0.992	0.987	44 37.7	2 58.5	151 43.3	10 6.9	0.95971	1.30161	4.12	0.6144
	24	0.5611	0.996	0.996	44 18.6	2 57.2	150 48.4	10 3.2	0.95919	1.30108	4.23	0.6265
	25	0.5639	1.000	1.005	44 5.2	2 56.3	149 53.3	9 59.6	0.95906	1.30054	4.35	0.6382
	26	0.5666	+1.004	+1.013	43 56.0	2 55.7	148 58.2	9 55.9	+0.95966	+1.30000	+4.46	+0.6495
	27	0.5693	1.009	1.022	43 48.4	2 55.2	148 2.9	9 52.2	0.96109	1.29944	4.57	0.6603
	28	0.5721	1.017	1.031	43 39.3	2 54.6	147 7.4	9 48.5	0.96332	1.29887	4.69	0.6708
	29	0.5748	1.027	1.039	43 26.4	2 53.8	146 11.8	9 44.8	0.96612	1.29831	4.80	0.6809
	30	0.5776	1.040	1.048	43 7.8	2 52.5	145 16.0	9 41.1	0.96921	1.29772	4.91	0.6907
	31	0.5803	+1.054	+1.056	42 43.1	2 50.9	144 20.0	9 37.3	+0.97221	+1.29713	+5.01	+0.7001
Aug.	1	0.5830	1.069	1.064	42 13.1	2 48.9	143 23.9	9 33.6	0.97474	1.29653	5.12	0.7092
	2	0.5858	1.083	1.072	41 39.6	2 46.6	142 27.7	9 29.8	0.97659	1.29593	5.22	0.7180
	3	0.5885	1.095	1.080	41 5.4	2 44.4	141 31.2	9 26.0	0.97762	1.29532	5.33	0.7265
	4	0.5913	1.105	1.088	40 33.0	2 42.2	140 34.6	9 22.3	0.97786	1.29471	5.43	0.7348
h	5	0.5940	+1.111	+1.096	40 5.2	2 40.3	139 37.8	9 18.5	+0.97750	+1.29409	+5.53	+0.7427
(21.0)	6	0.5967	1.115	1.104	39 43.6	2 38.9	138 40.8	9 14.7	0.97679	1.29347	5.63	0.7504
	7	0.5995	1.118	1.112	39 28.8	2 37.9	137 43.7	9 10.9	0.97611	1.29285	5.73	0.7579
	8	0.6022	1.119	1.119	39 20.2	2 37.4	136 46.3	9 7.1	0.97584	1.29222	5.82	0.7651
	9	0.6049	1.121	1.127	39 15.7	2 37.0	135 48.8	9 3.3	0.97614	1.29160	5.92	0.7721
	10	0.6077	+1.125	+1.134	39 13.0	2 36.9	134 51.1	8 59.4	+0.97721	+1.29097	+6.01	+0.7788
	11	0.6104	1.130	1.142	39 8.6	2 36.6	133 53.2	8 55.5	0.97897	1.29034	6.10	0.7854
	12	0.6132	1.138	1.149	39 0.3	2 36.0	132 55.1	8 51.7	0.98124	1.28971	6.19	0.7917
	13	0.6159	1.149	1.156	38 46.3	2 35.1	131 56.8	8 47.8	0.98372	1.28909	6.28	0.7978
	14	0.6186	1.160	1.163	38 26.2	2 33.7	130 58.3	8 43.9	0.98605	1.28847	6.36	0.8037
	15	0.6214	+1.172	+1.170	38 1.0	2 32.1	129 59.6	8 40.0	+0.98795	+1.28784	+6.45	+0.8094
	16	0.6241	+1.183	+1.177	37 32.5	2 30.2	129 0.7	8 36.1	+0.98919	+1.28722	+6.53	+0.8149

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	*f*	*f'*	*G*		*H*		Log *g*.	Log *h*.	*i*	Log *i*.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
Aug.	16	0.6241	+1.183	+1.177	37 32.5	2 30.2	129 0.7	8 36.1	+0.98919	+1.28722	+6.53	+0.8149
	17	0.6268	1.192	1.184	37 3.1	2 28.2	128 1.7	8 32.1	0.98971	1.28661	6.61	0.8202
	18	0.6296	1.199	1.191	36 35.7	2 26.4	127 2.4	8 28.1	0.98957	1.28600	6.69	0.8254
	19	0.6323	1.204	1.198	36 12.5	2 24.8	126 3.0	8 24.2	0.98899	1.28540	6.77	0.8303
	20	0.6351	1.206	1.204	35 55.0	2 23.7	125 3.3	8 20.2	0.98826	1.28481	6.84	0.8351
h (22.0)	21	0.6378	+1.207	+1.211	35 43.7	2 22.9	124 3.5	8 16.2	+0.98771	+1.28422	+6.91	+0.8397
	22	0.6405	1.209	1.217	35 37.6	2 22.5	123 3.5	8 12.2	0.98768	1.28363	6.98	0.8442
	23	0.6433	1.211	1.224	35 34.8	2 22.3	122 3.3	8 8.2	0.98837	1.28306	7.05	0.8485
	24	0.6460	1.216	1.230	35 32.6	2 22.2	121 3.0	8 4.2	0.98984	1.28250	7.12	0.8526
	25	0.6487	1.223	1.236	35 28.3	2 21.9	120 2.4	8 0.2	0.99203	1.28195	7.19	0.8566
	26	0.6515	+1.233	+1.242	35 19.4	2 21.3	119 1.7	7 56.1	+0.99467	+1.28141	+7.25	+0.8604
	27	0.6542	1.245	1.249	35 4.9	2 20.3	118 0.8	7 52.1	0.99745	1.28087	7.31	0.8640
	28	0.6570	1.257	1.255	34 44.7	2 19.0	116 59.8	7 48.0	1.00002	1.28036	7.37	0.8675
	29	0.6597	1.269	1.261	34 20.2	2 17.3	115 58.5	7 43.9	1.00208	1.27985	7.43	0.8708
	30	0.6624	1.280	1.266	33 53.4	2 15.6	114 57.1	7 39.8	1.00343	1.27936	7.48	0.8740
	31	0.6652	+1.288	+1.272	33 26.7	2 13.8	113 55.6	7 35.7	+1.00402	+1.27888	+7.54	+0.8771
Sept	1	0.6679	1.294	1.278	33 3.0	2 12.2	112 53.9	7 31.6	1.00391	1.27842	7.59	0.8800
	2	0.6707	1.297	1.284	32 44.5	2 11.0	111 52.0	7 27.5	1.00334	1.27798	7.64	0.8828
	3	0.6734	1.298	1.290	32 32.2	2 10.1	110 50.0	7 23.3	1.00261	1.27755	7.68	0.8854
	4	0.6761	1.297	1.295	32 26.4	2 9.8	109 47.8	7 19.2	1.00202	1.27713	7.72	0.8879
h (23.0)	5	0.6789	+1.297	+1.301	32 25.8	2 9.7	108 45.5	7 15.0	+1.00188	+1.27674	+7.77	+0.8903
	6	0.6816	1.298	1.306	32 28.3	2 9.9	107 43.0	7 10.9	1.00243	1.27636	7.81	0.8925
	7	0.6843	1.301	1.312	32 31.0	2 10.1	106 40.4	7 6.7	1.00370	1.27600	7.85	0.8946
	8	0.6871	1.307	1.317	32 31.2	2 10.1	105 37.6	7 2.5	1.00555	1.27566	7.88	0.8966
	9	0.6898	1.315	1.323	32 26.8	2 9.8	104 34.7	6 58.3	1.00779	1.27534	7.91	0.8984
	10	0.6926	+1.324	+1.328	32 16.6	2 9.1	103 31.7	6 54.1	+1.01011	+1.27504	+7.94	+0.9001
	11	0.6953	1.334	1.333	32 0.9	2 8.1	102 28.6	6 49.9	1.01219	1.27476	7.97	0.9016
	12	0.6980	1.344	1.339	31 41.2	2 6.8	101 25.4	6 45.7	1.01377	1.27451	8.00	0.9031
	13	0.7008	1.352	1.344	31 19.2	2 5.3	100 22.0	6 41.5	1.01468	1.27428	8.02	0.9044
	14	0.7035	1.358	1.349	30 57.8	2 3.9	99 18.5	6 37.2	1.01494	1.27406	8.04	0.9056
	15	0.7062	+1.362	+1.355	30 39.3	2 2.6	98 15.0	6 33.0	+1.01470	+1.27386	+8.06	+0.9066
	16	0.7090	1.363	1.360	30 25.7	2 1.7	97 11.3	6 28.8	1.01416	1.27369	8.08	0.9075
	17	0.7117	1.363	1.365	30 18.0	2 1.2	96 7.6	6 24.5	1.01363	1.27355	8.10	0.9083
	18	0.7145	1.363	1.370	30 16.1	2 1.1	95 3.8	6 20.3	1.01345	1.27342	8.11	0.9090
	19	0.7172	1.364	1.375	30 18.3	2 1.2	93 59.9	6 16.0	1.01387	1.27332	8.12	0.9095
h	20	0.7199	+1.367	+1.380	30 22.4	2 1.5	92 56.0	6 11.7	+1.01505	+1.27324	+8.13	+0.9099
(0.0)	21	0.7227	1.372	1.386	30 25.8	2 1.7	91 52.0	6 7.5	1.01697	1.27319	8.13	0.9102
	22	0.7254	1.380	1.391	30 26.0	2 1.7	90 48.0	6 3.2	1.01946	1.27316	8.14	0.9104
	23	0.7281	1.390	1.396	30 21.1	2 1.4	89 43.9	5 58.9	1.02227	1.27315	8.14	0.9104
	24	0.7309	1.401	1.401	30 10.7	2 0.7	88 39.8	5 54.7	1.02505	1.27317	8.13	0.9103
	25	0.7336	+1.413	+1.406	29 55.3	1 59.7	87 35.7	5 50.4	+1.02752	+1.27321	+8.13	+0.9101
	26	0.7364	1.423	1.411	29 36.4	1 58.4	86 31.6	5 46.1	1.02939	1.27328	8.12	0.9097
	27	0.7391	1.432	1.416	29 16.8	1 57.1	85 27.4	5 41.8	1.03055	1.27337	8.11	0.9092
	28	0.7418	1.438	1.422	28 58.5	1 55.9	84 23.3	5 37.5	1.03102	1.27348	8.10	0.9086
	29	0.7446	1.441	1.427	28 44.1	1 54.9	83 19.2	5 33.3	1.03098	1.27362	8.09	0.9079
	30	0.7473	+1.442	+1.432	28 35.3	1 54.4	82 15.0	5 29.0	+1.03065	+1.27378	+8.07	+0.9070
Oct.	1	0.7501	+1.441	+1.437	28 32.6	1 54.2	81 10.9	5 24.7	+1.03033	+1.27396	+8.05	+0.9060

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	*f*	*f'*	*G*		*H*		Log *g*.	Log *h*.	*i*	Log *i*.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
Oct.	1	0.7501	+1.441	+1.437	28 32.6	1 54.2	81 10.9	5 24.7	+1.03033	+1.27396	+8.05	+0.9060
	2	0.7528	1.440	1.442	28 35.5	1 54.4	80 6.8	5 20.5	1.03028	1.27417	8.03	0.9049
	3	0.7555	1.441	1.448	28 42.2	1 54.8	79 2.8	5 16.2	1.03083	1.27440	8.01	0.9037
	4	0.7583	1.443	1.453	28 50.4	1 55.4	77 58.7	5 11.9	1.03206	1.27465	7.99	0.9023
h	5	0.7610	1.448	1.458	28 57.1	1 55.8	76 54.7	5 7.6	1.03393	1.27492	7.96	0.9007
(1.0)	6	0.7637	+1.455	+1.464	29 0.2	1 56.0	75 50.8	5 3.4	+1.03628	+1.27522	+7.93	+0.8991
	7	0.7665	1.464	1.469	28 58.1	1 55.9	74 46.9	4 59.1	1.03885	1.27554	7.89	0.8973
	8	0.7692	1.474	1.475	28 50.4	1 55.4	73 43.0	4 54.9	1.04134	1.27587	7.86	0.8953
	9	0.7720	1.484	1.480	28 38.1	1 54.5	72 39.2	4 50.6	1.04346	1.27623	7.82	0.8933
	10	0.7747	1.493	1.486	28 22.7	1 53.5	71 35.5	4 46.4	1.04503	1.27661	7.78	0.8911
	11	0.7774	+1.500	+1.491	28 6.8	1 52.4	70 31.9	4 42.1	+1.04601	+1.27701	+7.74	+0.8887
	12	0.7802	1.505	1.497	27 52.7	1 51.5	69 28.3	4 37.9	1.04643	1.27742	7.69	0.8862
	13	0.7829	1.507	1.503	27 42.4	1 50.8	68 24.8	4 33.7	1.04647	1.27786	7.65	0.8835
	14	0.7856	1.508	1.509	27 37.3	1 50.5	67 21.4	4 29.4	1.04643	1.27831	7.60	0.8807
	15	0.7884	1.509	1.515	27 37.6	1 50.5	66 18.1	4 25.2	1.04660	1.27878	7.55	0.8778
	16	0.7911	+1.510	+1.521	27 42.6	1 50.8	65 14.9	4 21.0	+1.04726	+1.27927	+7.49	+0.8747
	17	0.7939	1.513	1.527	27 49.9	1 51.3	64 11.9	4 16.8	1.04856	1.27977	7.44	0.8714
	18	0.7966	1.518	1.533	27 57.6	1 51.8	63 8.9	4 12.6	1.05059	1.28028	7.38	0.8680
	19	0.7993	1.526	1.539	28 2.8	1 52.2	62 6.0	4 8.4	1.05326	1.28082	7.32	0.8644
h	20	0.8021	1.537	1.545	28 3.8	1 52.3	61 3.3	4 4.2	1.05632	1.28136	7.26	0.8607
(2.0)	21	0.8048	+1.549	+1.551	27 59.7	1 52.0	60 0.7	4 0.0	+1.05951	+1.28192	+7.19	+0.8567
	22	0.8075	1.562	1.558	27 50.2	1 51.3	58 58.2	3 55.9	1.06250	1.28249	7.12	0.8527
	23	0.8103	1.575	1.564	27 36.9	1 50.5	57 55.9	3 51.7	1.06505	1.28307	7.05	0.8484
	24	0.8130	1.585	1.571	27 21.6	1 49.4	56 53.7	3 47.6	1.06697	1.28366	6.98	0.8440
	25	0.8158	1.594	1.578	27 6.7	1 48.4	55 51.7	3 43.4	1.06826	1.28425	6.91	0.8394
	26	0.8185	+1.599	+1.584	26 54.4	1 47.6	54 49.7	3 39.3	+1.06899	+1.28487	+6.83	+0.8346
	27	0.8212	1.603	1.591	26 46.6	1 47.1	53 47.9	3 35.2	1.06935	1.28549	6.75	0.8296
	28	0.8240	1.604	1.598	26 44.1	1 46.9	52 46.3	3 31.1	1.06962	1.28612	6.67	0.8244
	29	0.8267	1.605	1.605	26 47.0	1 47.1	51 44.8	3 27.0	1.07008	1.28675	6.59	0.8190
	30	0.8295	1.607	1.612	26 53.8	1 47.6	50 43.5	3 22.9	1.07097	1.28739	6.51	0.8134
	31	0.8322	+1.610	+1.619	27 2.3	1 48.2	49 42.3	3 18.8	+1.07244	+1.28803	+6.42	+0.8076
Nov.	1	0.8349	1.616	1.627	27 10.6	1 48.7	48 41.3	3 14.7	1.07457	1.28868	6.33	0.8016
	2	0.8377	1.624	1.634	27 16.5	1 49.1	47 40.4	3 10.7	1.07718	1.28933	6.24	0.7954
	3	0.8404	1.635	1.641	27 17.7	1 49.1	46 39.7	3 6.7	1.08008	1.28999	6.15	0.7890
h	4	0.8431	1.647	1.649	27 13.6	1 48.9	45 39.1	3 2.6	1.08306	1.29064	6.06	0.7823
(3.0)	5	0.8459	+1.659	+1.657	27 4.7	1 48.3	44 38.7	2 58.6	+1.08570	+1.29130	+5.96	+0.7753
	6	0.8486	1.671	1.665	26 52.3	1 47.5	43 38.4	2 54.6	1.08793	1.29195	5.86	0.7681
	7	0.8513	1.681	1.672	26 38.4	1 46.6	42 38.3	2 50.6	1.08961	1.29261	5.76	0.7607
	8	0.8541	1.689	1.680	26 25.1	1 45.7	41 38.3	2 46.6	1.09077	1.29327	5.66	0.7530
	9	0.8568	1.694	1.688	26 14.5	1 45.0	40 38.5	2 42.6	1.09153	1.29391	5.56	0.7450
	10	0.8596	+1.698	+1.697	26 8.2	1 44.5	39 38.8	2 38.6	+1.09209	+1.29456	+5.45	+0.7367
	11	0.8623	1.701	1.705	26 6.7	1 44.4	38 39.3	2 34.6	1.09273	1.29521	5.35	0.7281
	12	0.8650	1.704	1.713	26 9.5	1 44.6	37 39.9	2 30.7	1.09373	1.29585	5.24	0.7192
	13	0.8678	1.709	1.722	26 15.1	1 45.0	36 40.6	2 26.7	1.09525	1.29648	5.13	0.7099
	14	0.8705	1.716	1.730	26 21.7	1 45.4	35 41.5	2 22.8	1.09740	1.29711	5.02	0.7003
	15	0.8733	+1.726	+1.739	26 26.7	1 45.8	34 42.5	2 18.8	+1.10017	+1.29773	+4.90	+0.6904
	16	0.8760	+1.738	+1.748	26 28.1	1 45.9	33 43.7	2 14.9	+1.10335	+1.29835	+4.79	+0.6801

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f	f′	G.		H		Log g.	Log h.	i	Log i.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
Nov.	16	0.8760	+1.738	+1.748	26 28.1	1 45.9	33 43.7	2 14.9	+1.10335	+1.29835	+4.79	+0.6801
	17	0.8787	1.752	1.757	26 25.1	1 45.7	32 45.0	2 11.0	1.10674	1.29895	4.67	0.6694
	18	0.8815	1.768	1.766	26 17.5	1 45.2	31 46.4	2 7.1	1.11008	1.29955	4.55	0.6583
	19	0.8842	1.783	1.775	26 5.5	1 44.4	30 48.0	2 3.2	1.11308	1.30013	4.43	0.6467
	20	0.8869	1.797	1.784	25 50.8	1 43.4	29 49.8	1 59.3	1.11556	1.30071	4.31	0.6347
h (4.0)	21	0.8897	+1.809	+1.793	25 35.6	1 42.4	28 51.6	1 55.4	+1.11742	+1.30127	+4.19	+0.6222
	22	0.8924	1.818	1.802	25 21.8	1 41.5	27 53.6	1 51.6	1.11876	1.30182	4.07	0.6092
	23	0.8952	1.824	1.812	25 11.4	1 40.8	26 55.8	1 47.7	1.11968	1.30237	3.94	0.5956
	24	0.8979	1.829	1.821	25 5.4	1 40.4	25 58.0	1 43.9	1.12042	1.30290	3.82	0.5815
	25	0.9006	1.832	1.831	25 4.2	1 40.3	25 0.4	1 40.0	1.12122	1.30341	3.69	0.5667
	26	0.9034	+1.836	+1.840	25 6.8	1 40.5	24 2.8	1 36.2	+1.12231	+1.30391	+3.56	+0.5513
	27	0.9061	1.842	1.850	25 11.8	1 40.8	23 5.4	1 32.4	1.12387	1.30439	3.43	0.5351
	28	0.9088	1.849	1.860	25 17.4	1 41.2	22 8.2	1 28.6	1.12598	1.30486	3.30	0.5182
	29	0.9116	1.859	1.870	25 21.0	1 41.4	21 11.0	1 24.7	1.12858	1.30532	3.17	0.5005
	30	0.9143	1.872	1.879	25 21.0	1 41.4	20 13.9	1 20.9	1.13147	1.30576	3.03	0.4818
Dec.	1	0.9171	+1.886	+1.890	25 16.4	1 41.1	19 16.9	1 17.1	+1.13447	+1.30618	+2.90	+0.4622
	2	0.9198	1.901	1.900	25 7.3	1 40.5	18 20.0	1 13.3	1.13734	1.30658	2.76	0.4415
	3	0.9225	1.915	1.910	24 54.5	1 39.6	17 23.1	1 9.5	1.13984	1.30697	2.63	0.4196
	4	0.9253	1.928	1.920	24 39.4	1 38.6	16 26.4	1 5.8	1.14188	1.30734	2.49	0.3964
	5	0.9280	1.939	1.930	24 24.1	1 37.6	15 29.7	1 2.0	1.14343	1.30769	2.35	0.3717
h (5.0)	6	0.9308	+1.948	+1.940	24 10.7	1 36.7	14 33.1	0 58.2	+1.14452	+1.30802	+2.21	+0.3454
	7	0.9335	1.954	1.951	24 0.4	1 36.0	13 36.6	0 54.4	1.14536	1.30834	2.08	0.3172
	8	0.9362	1.959	1.961	23 54.1	1 35.6	12 40.2	0 50.7	1.14618	1.30864	1.94	0.2869
	9	0.9390	1.964	1.972	23 51.6	1 35.4	11 43.7	0 46.9	1.14718	1.30891	1.80	0.2542
	10	0.9417	1.970	1.982	23 52.8	1 35.5	10 47.3	0 43.2	1.14857	1.30916	1.66	0.2187
	11	0.9444	+1.978	+1.993	23 55.3	1 35.7	9 51.0	0 39.4	+1.15047	+1.30940	+1.51	+0.1798
	12	0.9472	1.989	2.003	23 57.1	1 35.8	8 54.7	0 35.6	1.15293	1.30961	1.37	0.1370
	13	0.9499	2.003	2.014	23 56.7	1 35.8	7 58.5	0 31.9	1.15583	1.30980	1.23	0.0893
	14	0.9527	2.018	2.025	23 52.4	1 35.5	7 2.3	0 28.2	1.15897	1.30998	1.09	0.0355
	15	0.9554	2.035	2.035	23 43.9	1 34.9	6 6.1	0 24.4	1.16214	1.31013	0.94	9.9739
	16	0.9581	+2.053	+2.046	23 31.3	1 34.1	5 10.0	0 20.7	+1.16509	+1.31026	+0.80	+9.9020
	17	0.9609	2.069	2.057	23 15.6	1 33.0	4 13.8	0 16.9	1.16764	1.31037	0.65	9.8155
	18	0.9636	2.083	2.068	22 58.6	1 31.9	3 17.7	0 13.2	1.16967	1.31045	0.51	9.7073
	19	0.9663	2.094	2.079	22 42.1	1 30.8	2 21.6	0 9.4	1.17119	1.31052	0.36	9.5626
	20	0.9691	2.103	2.089	22 27.9	1 29.9	1 25.6	0 5.7	1.17224	1.31056	0.22	9.3438
h (6.0)	21	0.9718	+2.110	+2.100	22 17.4	1 29.2	0 29.5	0 2.0	+1.17302	+1.31059	+0.08	+8.8811
	22	0.9746	2.115	2.111	22 11.1	1 28.7	359 33.4	23 58.2	1.17374	1.31059	−0.07	−8.8364
	23	0.9773	2.120	2.122	22 8.6	1 28.6	358 37.3	23 54.5	1.17465	1.31057	0.21	9.3289
	24	0.9800	2.126	2.132	22 8.9	1 28.6	357 41.2	23 50.7	1.17590	1.31052	0.36	9.5537
	25	0.9828	2.134	2.143	22 10.3	1 28.7	356 45.1	23 47.0	1.17758	1.31046	0.50	9.7010
	26	0.9855	+2.144	+2.154	22 11.0	1 28.7	355 49.0	23 43.3	+1.17968	+1.31037	−0.65	−9.8106
	27	0.9882	2.156	2.165	22 9.1	1 28.6	354 52.8	23 39.5	1.18213	1.31026	0.79	9.8980
	28	0.9910	2.171	2.175	22 3.5	1 28.2	353 56.7	23 35.8	1.18475	1.31014	0.94	9.9706
	29	0.9937	2.186	2.186	21 53.7	1 27.6	353 0.4	23 32.0	1.18733	1.30999	1.08	0.0327
	30	0.9965	2.201	2.197	21 40.4	1 26.7	352 4.2	23 28.3	1.18963	1.30981	1.22	0.0868
	31	0.9992	+2.215	+2.208	21 24.3	1 25.6	351 7.9	23 24.5	+1.19157	+1.30962	−1.36	−0.1349
	32	1.0019	+2.227	+2.218	21 7.5	1 24.5	350 11.5	23 20.8	+1.19307	+1.30941	−1.51	−0.1780

(CONSTANTS OF STRUVE AND PETERS.)

FOR WASHINGTON SIDEREAL TWELVE HOURS.

Mean Solar Date.	Log *A′*.	Log *B′*.	Log *C*.	Log *D*.	*f′*	*G′*	*H*	Log *g′*.	Log *h*.	Log *i*.
					s	° ′	° ′			
Jan. 0.72	− 9.3015	+ 0.8992	− 0.5185	+ 1.3038	− 0.617	116 52	350 41	+ 0.9488	+ 1.3095	− 0.1559
10.69	9.2234	0.8907	0.8133	1.2827	0.516	113 20	341 16	0.9278	1.3064	0.4504
20.67	9.1347	0.8792	0.9779	1.2461	0.421	109 51	331 40	0.9058	1.3016	0.6152
30.64	9.0344	0.8653	1.0865	1.1911	0.334	106 29	321 50	0.8835	1.2955	0.7237
Feb. 9.61	8.9200	0.8503	1.1617	1.1123	0.257	103 15	311 45	0.8620	1.2890	0.7990
19.59	− 8.7868	+ 0.8355	− 1.2140	+ 0.9993	− 0.190	100 10	301 24	+ 0.8424	+ 1.2827	− 0.8512
Mar. 1.56	8.6223	0.8226	1.2483	0.8278	0.130	97 12	290 48	0.8261	1.2775	0.8855
11.53	8.3890	0.8127	1.2675	+ 0.5162	0.077	94 19	280 3	0.8140	1.2742	0.9048
21.50	− 7.9074	0.8069	1.2731	− 9.3856	− 0.027	91 27	269 15	0.8070	1.2731	0.9104
31.48	+ 7.9269	0.8053	1.2657	0.5733	+ 0.024	88 29	258 31	0.8055	1.2745	0.9030
Apr. 10.45	+ 8.4138	+ 0.8078	− 1.2451	− 0.8522	+ 0.077	85 22	247 58	+ 0.8092	+ 1.2780	− 0.8823
20.42	8.6564	0.8135	1.2102	1.0111	0.137	82 3	237 42	0.8176	1.2832	0.8474
30.39	8.8272	0.8210	1.1586	1.1170	0.204	78 30	227 45	0.8298	1.2893	0.7958
May 10.37	8.9628	0.8290	1.0860	1.1915	0.280	74 44	218 7	0.8446	1.2956	0.7232
20.34	9.0761	0.8362	0.9839	1.2441	0.364	70 47	208 47	0.8610	1.3013	0.6213
30.31	+ 9.1730	+ 0.8415	− 0.8342	− 1.2797	+ 0.455	66 43	199 43	+ 0.8783	+ 1.3060	− 0.4714
June 9.28	9.2566	0.8438	0.5838	1.3013	0.552	62 35	190 51	0.8955	1.3092	0.2211
19.26	9.3289	0.8427	− 9.8720	1.3102	0.653	58 26	182 5	0.9122	1.3105	− 9.5092
29.23	9.3913	0.8378	+ 0.3735	1.3071	0.754	54 21	173 21	0.9279	1.3100	+ 0.0107
July 9.20	9.4448	0.8290	0.7328	1.2918	0.854	50 23	164 34	0.9423	1.3077	0.3700
19.18	+ 9.4903	+ 0.8168	+ 0.9190	− 1.2632	+ 0.948	46 36	155 39	+ 0.9555	+ 1.3038	+ 0.5562
29.15	9.5288	0.8017	1.0401	1.2197	1.036	43 4	146 31	0.9673	1.2985	0.6773
Aug. 8.12	9.5611	0.7846	1.1251	1.1575	1.116	39 50	137 8	0.9780	1.2925	0.7623
18.09	9.5881	0.7668	1.1860	1.0701	1.188	36 58	127 26	0.9877	1.2863	0.8233
28.07	9.6108	0.7498	1.2287	0.9441	1.252	34 29	117 26	0.9969	1.2806	0.8659
Sept. 7.04	+ 9.6303	+ 0.7351	+ 1.2564	− 0.7459	+ 1.309	32 24	107 9	+ 1.0059	+ 1.2762	+ 0.8936
17.01	9.6475	0.7242	1.2707	− 0.3370	1.362	30 45	96 39	1.0154	1.2736	0.9079
26.98	9.6636	0.7181	1.2722	+ 0.1160	1.414	29 29	86 1	1.0260	1.2733	0.9095
Oct. 6.96	9.6794	0.7171	1.2610	0.6781	1.466	28 33	75 22	1.0378	1.2754	0.8982
16.93	9.6959	0.7209	1.2360	0.9087	1.523	27 51	64 48	1.0515	1.2795	0.8733
26.90	+ 9.7138	+ 0.7284	+ 1.1953	+ 1.0500	+ 1.587	27 17	54 25	+ 1.0671	+ 1.2851	+ 0.8326
Nov. 5.88	9.7332	0.7378	1.1354	1.1465	1.660	26 45	44 16	1.0845	1.2916	0.7726
15.85	9.7542	0.7473	1.0496	1.2146	1.742	26 9	34 22	1.1032	1.2980	0.6868
25.82	9.7764	0.7552	0.9245	1.2619	1.834	25 24	24 42	1.1227	1.3036	0.5618
Dec. 5.79	9.7994	0.7599	0.7268	1.2923	1.933	24 29	15 13	1.1424	1.3078	0.3642
15.77	+ 9.8223	+ 0.7602	+ 0.3184	+ 1.3079	+ 2.038	23 23	5 51	+ 1.1616	+ 1.3102	+ 9.9562
25.74	9.8445	0.7554	− 0.0929	1.3096	2.146	22 6	356 32	1.1799	1.3104	− 9.7300
35.71	+ 9.8655	+ 0.7452	− 0.6553	+ 1.2976	+ 2.253	20 43	347 10	+ 1.1967	+ 1.3086	− 0.2929

E = − $0^s.002$

The above numbers give the same reductions from mean to apparent place as are employed in computing the apparent places of the fixed stars, given on pages 324–399, from the mean places, given on pages 304–311. In order to render exact interpolation possible through intervals of ten days, all short-period terms have been omitted.

MEAN PLACES FOR 1906.0. (January 0d.553, Washington.)

Name of Star.	Magnitude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	′	″	″
33 Piscium	4.7	0	0	31.469	+ 3.0716	− 6	14	0.27	+ 20.137
α Andromedæ	2.1	0	3	31.592	3.0944	+ 28	34	17.30	19.881
β Cassiopeiæ	2.4	0	4	9.413	3.1801	+ 58	37	52.80	19.863
22 Andromedæ	4.9	0	5	25.924	3.1068	+ 45	32	57.06	20.036
γ Pegasi (*Algenib*)	2.8	0	8	23.646	3.0855	+ 14	39	39.61	20.023
σ Andromedæ	4.4	0	13	24.857	+ 3.1254	+ 36	15	50.74	+ 19.965
ι Ceti	3.6	0	14	38.332	3.0571	− 9	20	41.89	19.976
44 Piscium	5.8	0	20	35.020	3.0740	+ 1	25	8.86	19.942
β Hydri	2.8	0	20	49.368	3.2132	− 77	47	1.16	20.282
12 Ceti	6.0	0	25	14.512	3.0621	− 4	28	35.78	19.924
π Andromedæ	4.4	0	31	51.454	+ 3.1955	+ 33	12	7.12	+ 19.853
α Cassiopeiæ (*var.*)	2.3	0	35	10.038	3.3818	+ 56	1	18.89	19.779
β Ceti	2.2	0	38	52.304	3.0129	− 18	30	8.60	19.800
21 Cassiopeiæ	5.7	0	39	25.608	3.8910	+ 74	28	27.75	19.724
ο Cassiopeiæ	4.7	0	39	28.987	3.3276	+ 47	46	12.17	19.743
δ Piscium	4.8	0	43	48.263	+ 3.1094	+ 7	4	25.03	+ 19.637
γ Cassiopeiæ	2.3	0	51	1.682	3.5914	+ 60	12	28.30	19.546
μ Andromedæ	4.0	0	51	31.939	3.3183	+ 37	59	22.58	19.572
43 Cephei (H.)	4.6	0	55	46.085	7.4807	+ 85	45	11.50	19.452
ε Piscium	4.3	0	58	3.810	3.1104	+ 7	23	3.06	19.432
β Andromedæ	2.2	1	4	27.915	+ 3.3482	+ 35	7	20.38	+ 19.142
κ Tucanæ	4.9	1	12	34.867	2.0412	− 69	22	31.73	19.139
f Piscium	5.1	1	12	56.972	3.0919	+ 3	7	10.59	19.014
θ¹ Ceti	3.6	1	19	19.469	2.9976	− 8	40	5.66	18.643
38 Cassiopeiæ	5.9	1	24	13.300	4.4023	+ 69	46	52.08	18.636
α Ursæ Minoris (*Polaris*)	2.2	1	25	8.23*	+ 26.4736	+ 88	48	18.95	+ 18.682
η Piscium	3.7	1	26	27.076	3.2046	+ 14	51	41.20	18.634
υ Andromedæ	4.2	1	31	16.551	3.5067	+ 40	56	7.89	18.[illegible]
π Piscium	5.5	1	32	6.813	3.1754	+ 11	39	39.14	18.483
α Eridani (*Achernar*)	0.4	1	34	12.847	2.2375	− 57	42	51.27	18.335
ν Piscium	4.6	1	36	32.304	+ 3.1189	+ 5	0	43.80	+ 18.297
ο Piscium	4.4	1	40	25.706	3.1640	+ 8	41	5.41	18.197
ζ Ceti	3.6	1	46	49.224	2.9599	− 10	47	57.00	17.881
β Arietis	2.8	1	49	26.672	3.3067	+ 20	20	55.56	17.693
50 Cassiopeiæ	4.1	1	55	23.429	5.0438	+ 71	58	0.36	17.579
γ Andromedæ	2.2	1	58	7.495	+ 3.6677	+ 41	52	44.32	+ 17.391
α Arietis	2.1	2	1	52.300	3.3742	+ 23	1	5.67	17.134
β Trianguli	3.1	2	3	56.801	3.5587	+ 34	32	34.60	17.141
ξ¹ Ceti	4.5	2	8	0.968	3.1759	+ 8	24	21.43	16.983
γ Trianguli	4.3	2	11	43.359	3.5558	+ 33	24	45.89	16.774
67 Ceti	5.6	2	12	17.638	+ 2.9902	− 6	51	18.45	+ 16.688
δ Hydri	4.2	2	20	4.386	1.0558	− 69	5	13.23	16.437
ι Cassiopeiæ	4.6	2	21	18.628	4.8910	+ 66	58	48.74	16.365
ξ² Ceti	4.5	2	23	9.571	+ 3.1854	+ 8	2	20.56	16.254
μ Hydri	5.3	2	33	38.676	− 1.3733	− 79	31	10.55	15.670
δ Ceti	4.1	2	34	39.806	+ 3.0724	− 0	4	35.80	+ 15.657
θ Persei	4.2	2	37	46.464	4.0787	+ 48	49	52.66	15.394
γ Ceti	3.6	2	38	25.715	+ 3.1051	+ 2	50	23.91	+ 15.294

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Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
		h m s	s	° ′ ″	″
σ Arietis	5.5	2 46 18.045	+ 3.3067	+ 14 41 41.92	+ 14.962
47 Cephei (H.)	5.7	2 53 33.457	7.8065	+ 79 2 52.65	14.578
ε Arietis	4.6	2 53 50.063	3.4237	+ 20 57 52.93	14.541
α Ceti	2.6	2 57 21.861	3.1323	+ 3 43 16.65	14.259
β Persei (*Algol*) (*var.*)	2.3	3 2 2.910	3.8902	+ 40 35 38.17	14.046
48 Cephei (H.)	5.5	3 8 21.993	+ 7.4685	+ 77 23 24.38	+ 13.593
ζ Arietis	4.8	3 9 29.757	3.4421	+ 20 41 47.06	13.494
α Persei	1.9	3 17 36.394	+ 4.2647	+ 49 31 37.55	13.017
ι Hydri	5.7	3 18 17.197	− 1.5707	− 77 43 55.22	13.040
f Tauri	4.3	3 25 40.910	+ 3.3079	+ 12 36 53.81	12.503
ε Eridani	3.7	3 28 30.066	+ 2.8247	− 9 46 33.67	+ 12.333
δ Persei	3.1	3 36 13.661	4.2562	+ 47 29 14.94	11.730
γ Camelopardalis	4.6	3 40 25.398	6.2697	+ 71 2 35.47	11.411
η Tauri	3.1	3 41 53.672	3.5600	+ 23 48 53.54	11.312
ζ Persei	3.0	3 48 13.224	+ 3.7636	+ 31 36 17.75	10.888
γ Hydri	3.3	3 48 41.173	− 0.9748	− 74 31 37.84	+ 10.985
ε Persei	3.0	3 51 32.586	+ 4.0166	+ 39 44 19.60	10.630
γ Eridani	3.0	3 53 38.608	2.7980	− 13 46 32.00	10.390
A^1 Tauri	4.6	3 59 8.169	3.5419	+ 21 49 31.89	10.030
c Persei	4.3	4 1 50.040	4.3438	+ 47 27 43.35	9.852
ο^1 Eridani	4.2	4 7 16.591	+ 2.9268	− 7 4 56.10	+ 9.553
γ Tauri	3.8	4 14 26.554	3.4106	+ 15 24 3.87	8.884
ε Tauri	3.6	4 23 7.583	+ 3.4996	+ 18 58 20.63	8.189
δ Mensæ	5.6	4 24 18.712	− 4.1727	− 80 26 4.35	8.200
m Persei	6.0	4 26 47.900	+ 4.2128	+ 42 51 49.07	7.933
α Tauri (*Aldebaran*)	1.0	4 30 31.522	+ 3.4390	+ 16 19 14.75	+ 7.440
τ Tauri	4.5	4 36 36.112	3.5975	+ 22 46 37.37	7.115
α Camelopardalis	4.4	4 44 42.033	5.9421	+ 66 11 1.56	6.474
i Tauri	5.2	4 45 52.431	3.5067	+ 18 40 49.21	6.337
ι Aurigæ	2.8	4 50 52.219	3.9026	+ 33 1 3.95	5.934
ζ Aurigæ	3.9	4 55 54.324	+ 4.1880	+ 40 56 21.17	+ 5.512
11 Orionis	4.7	4 59 11.813	3.4259	+ 15 16 25.17	5.220
β Eridani	2.9	5 3 13.708	2.9488	− 5 12 27.02	4.841
α Aurigæ (*Capella*)	0.1	5 9 44.596	4.4273	+ 45 54 10.80	3.932
β Orionis (*Rigel*)	0.3	5 10 1.188	2.8819	− 8 18 35.30	4.337
τ Orionis	3.8	5 13 2.515	+ 2.9122	− 6 56 44.03	+ 4.074
β Tauri	1.8	5 20 20.934	3.7906	+ 28 31 42.83	3.274
χ Aurigæ	5.0	5 26 36.530	3.9033	+ 32 7 22.80	2.897
Groombridge 966	6.4	5 27 8.994	8.0027	+ 74 58 57.44	2.881
δ Orionis (*var.*)	2.3	5 27 12.232	3.0639	− 0 22 5.84	2.856
α Leporis	2.7	5 28 35.055	+ 2.6454	− 17 53 21.15	+ 2.739
ε Orionis	1.8	5 31 26.598	3.0432	− 1 15 41.36	2.493
Groombridge 944	6.4	5 31 46.576	18.7207	+ 85 9 4.84	2.459
α Columbæ	2.7	5 36 14.713	2.1722	− 34 7 26.20	2.036
κ Orionis	2.3	5 43 17.893	2.8446	− 9 42 9.43	1.456
δ Doradus	4.4	5 44 36.192	+ 0.1014	− 65 46 14.79	+ 1.345
ν Aurigæ	4.1	5 44 58.469	4.1569	+ 39 7 17.46	1.326
α Orionis (*var.*)	0.9	5 50 4.957	+ 3.2476	+ 7 23 23.96	+ 0.877

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		h m s	s	° ′ ″	″
β Aurigæ . . .	2.0	5 52 38.045	+ 4.4015	+ 44 56 18.58	+ 0.638
θ Aurigæ . . .	2.9	5 53 18.678	4.0914	+ 37 12 23.48	+ 0.494
ν Orionis . . .	4.5	6 2 12.320	3.4263	+ 14 46 48.49	− 0.218
22 Camelopardalis (H.) .	4.7	6 8 29.418	6.6195	+ 69 21 13.47	0.856
η Geminorum . .	3.5	6 9 12.249	3.6227	+ 22 32 4.27	0.821
μ Geminorum . .	3.2	6 17 16.448	+ 3.6308	+ 22 33 44.48	− 1.624
ψ^1 Aurigæ . . .	5.1	6 17 39.651	4.6264	+ 49 20 11.44	1.547
α Argûs (*Canopus*). .	−0.8	6 21 51.915	1.3318	− 52 38 39.02	1.901
ν Geminorum . .	4.2	6 23 22.912	3.5630	+ 20 16 19.70	2.057
γ Geminorum . .	2.0	6 32 16.925	3.4672	+ 16 28 47.86	2.862
ε Geminorum . .	3.2	6 38 8.967	+ 3.6932	+ 25 13 29.01	− 3.339
ψ^5 Aurigæ . . .	5.4	6 39 57.989	4.3307	+ 43 40 17.57	3.318
† α Canis Majoris (*Sirius*)	−1.4	6 41 0.355	2.6435	− 16 35 12.64	4.775
θ Geminorum . .	3.7	6 46 35.702	+ 3.9589	+ 34 4 30.43	4.098
ζ Mensæ . . .	5.6	6 47 52.846	− 4.9281	− 80 42 53.75	4.076
ε Canis Majoris . .	1.5	6 54 55.886	+ 2.3573	− 28 50 37.58	− 4.756
51 Cephei (H.) . .	5.3	6 56 41.40*	29.4868	+ 87 11 51.62	4.944
ζ Geminorum (*var.*) .	4.0	6 58 32.079	3.5611	+ 20 42 31.14	5.072
δ Canis Majoris . .	1.9	7 4 34.112	2.4380	− 26 14 36.90	5.570
63 Aurigæ . . .	5.2	7 5 11.523	+ 4.1341	+ 39 28 27.95	5.628
γ^2 Volantis (*var.*) . .	3.9	7 9 32.780	− 0.4982	− 70 20 46.70	− 5.913
25 Camelopardalis (H.) .	5.3	7 11 21.009	+ 12.8735	+ 82 35 39.26	6.187
δ Geminorum . .	3.5	7 14 30.631	3.5872	+ 22 9 21.24	6.418
Piazzi vii, 67 . .	5.7	7 21 6.454	6.2827	+ 68 39 30.32	6.992
β Canis Minoris . .	3.1	7 22 3.238	3.2558	+ 8 28 44.98	7.072
α^2 Geminorum (*Castor*) .	1.9	7 28 36.232	+ 3.8344	+ 32 5 43.42	− 7.640
† α Canis Min. (*Procyon*) .	0.5	7 34 22.910	3.1426	+ 5 27 58.29	9.062
β Geminorum (*Pollux*) .	1.2	7 39 33.931	3.6769	+ 28 15 13.34	8.493
φ Geminorum . .	5.0	7 47 44.787	3.6778	+ 27 0 34.62	9.108
26 Lyncis . . .	5.8	7 47 52.326	4.3842	+ 47 48 31.78	9.096
Groombridge 1374 .	5.6	7 48 57.533	+ 7.2608	+ 74 10 11.39	− 9.212
ω^1 Cancri . . .	6.0	7 55 14.697	3.6351	+ 25 39 2.03	9.665
3 Ursæ Majoris (H.) .	5.5	8 3 28.064	6.0228	+ 68 45 5.40	10.280
15 Argûs (ρ) . . .	3.1	8 3 32.436	2.5545	− 24 1 58.38	10.238
ζ^1 Cancri . . .	4.8	8 6 49.348	3.4455	+ 17 55 54.30	10.664
β Cancri . . .	3.8	8 11 25.100	+ 3.2563	+ 9 28 32.38	− 10.928
30 Monocerotis . .	3.9	8 20 57.871	+ 2.9999	− 3 35 57.76	11.587
θ Chamæleontis . .	4.6	8 23 28.276	− 1.7323	− 77 10 53.33	11.729
η Cancri . . .	5.4	8 27 16.486	+ 3.4756	+ 20 45 39.12	12.069
σ Hydræ . . .	4.5	8 33 50.721	3.1388	+ 3 40 18.71	12.481
γ Cancri . . .	4.9	8 37 50.904	+ 3.4782	+ 21 48 25.03	− 12.784
ε Hydræ . . .	3.5	8 41 47.961	3.1804	+ 6 45 50.76	13.054
σ^2 Cancri (*mean*) . .	5.5	8 48 30.734	3.6699	+ 30 56 8.88	13.468
ι Ursæ Majoris . .	3.3	8 52 46.591	4.1267	+ 48 24 40.17	13.970
σ^2 Ursæ Majoris . .	5.0	9 2 8.048	5.3341	+ 67 30 59.95	14.373
κ Cancri . . .	5.1	9 2 39.441	+ 3.2535	+ 11 2 48.54	− 14.351
θ Hydræ . . .	4.0	9 9 28.498	3.1241	+ 2 42 40.40	15.061
β Argûs . . .	2.0	9 12 10.281	+ 0.6732	− 69 19 47.84	14.814

† Periodic corrections given in the Appendix are still to be applied to the positions of Sirius and Procyon.

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Name of Star.	Magnitude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	′	″	″
ι Argûs	2.6	9	14	34.345	+ 1.6043	- 58	52	50.03	- 15.041
α Lyncis	3.3	9	15	19.896	3.6659	+ 34	47	25.47	15.079
α Hydræ	2.1	9	22	58.115	2.9488	- 8	15	2.90	15.489
1 Draconis (H.)	4.5	9	23	44.615	8.8699	+ 81	44	33.50	15.592
d Ursæ Majoris	4.8	9	26	11.151	5.3753	+ 70	14	38.24	15.628
θ Ursæ Majoris	3.2	9	26	34.560	+ 4.0353	+ 52	6	22.21	- 16.264
10 Leonis Minoris	4.7	9	28	28.104	3.6878	+ 36	48	55.02	15.843
ο Leonis	3.8	9	36	8.111	+ 3.2058	+ 10	19	13.25	16.258
ζ Chamæleontis	5.2	9	36	40.396	- 1.6242	- 80	31	8.35	16.234
ε Leonis	3.2	9	40	31.066	+ 3.4126	+ 24	12	26.35	16.469
μ Leonis	4.0	9	47	25.160	+ 3.4189	+ 26	26	59.90	- 16.839
19 Leonis Minoris	5.2	9	51	55.849	3.6882	+ 41	30	13.02	17.019
π Leonis	5.0	9	55	14.822	3.1729	+ 8	29	43.77	17.176
α Leonis (*Regulus*)	1.3	10	3	22.037	3.1991	+ 12	25	36.71	17.508
32 Ursæ Majoris	5.7	10	11	13.068	4.4035	+ 65	34	39.29	17.843
λ Ursæ Majoris	3.6	10	11	25.941	+ 3.6345	+ 43	23	2.75	- 17.877
γ^1 Leonis	2.5	10	14	47.505	3.3129	+ 20	19	2.18	18.123
μ Hydræ	4.1	10	21	32.632	2.9002	- 16	21	22.22	18.304
β Leonis Minoris	4.3	10	22	27.096	3.4818	+ 37	11	20.61	18.370
α Antliæ	4.5	10	22	50.952	2.7415	- 30	35	21.21	18.295
9 Draconis (H.)	5.0	10	27	7.616	+ 5.2088	+ 76	11	50.97	- 18.432
ρ Leonis	4.0	10	27	51.778	3.1623	+ 9	47	26.00	18.451
41 Leonis Minoris	5.1	10	38	18.431	3.2686	+ 23	40	50.56	18.777
η Argûs (*var.*)	1–6	10	41	24.714	2.3188	- 59	11	24.74	18.888
l Leonis	5.3	10	44	19.062	3.1571	+ 11	2	33.71	18.996
δ^2 Chamæleontis	4.7	10	44	54.442	+ 0.6031	- 80	2	39.81	- 18.984
46 Leonis Minoris	3.9	10	48	3.465	3.3658	+ 34	43	18.64	19.350
Groombridge 1706	6.3	10	52	27.355	4.9161	+ 78	16	26.05	19.217
α Ursæ Majoris	2.0	10	57	56.087	+ 3.7358	+ 62	15	31.04	19.387
η Octantis	6.1	10	59	59.07*	- 0.3256	- 84	5	17.57	19.368
p^3 Leonis	6.2	11	2	6.571	+ 3.0615	+ 2	27	57.72	- 19.490
ψ Ursæ Majoris	3.2	11	4	22.988	3.3884	+ 45	0	31.28	19.492
δ Leonis	2.7	11	9	6.671	3.1964	+ 21	2	19.71	19.695
ν Ursæ Majoris	3.7	11	13	24.261	3.2500	+ 33	36	26.47	19.607
δ Crateris	3.9	11	14	38.407	2.9968	- 14	16	11.09	19.460
τ Leonis	5.1	11	23	6.212	+ 3.0859	+ 3	22	26.55	- 19.804
λ Draconis	4.0	11	25	50.027	3.6061	+ 69	50	59.88	19.845
ξ Hydræ	3.8	11	28	22.602	2.9447	- 31	20	14.97	19.910
υ Leonis	4.4	11	32	8.154	3.0715	- 0	18	16.86	19.859
χ Ursæ Majoris	3.9	11	41	5.455	3.1832	+ 48	18	2.30	19.958
β Leonis	2.2	11	44	15.964	+ 3.0630	+ 15	5	51.23	- 20.117
γ Ursæ Majoris	2.4	11	48	53.467	3.1738	+ 54	13	2.68	20.018
π Virginis	4.6	11	56	3.363	3.0744	+ 7	8	18.55	20.075
ο Virginis	4.3	12	0	25.279	3.0573	+ 9	15	18.09	20.014
ε Corvi	3.2	12	5	17.319	3.0799	- 22	5	49.18	20.038
4 Draconis (H.)	5.1	12	7	48.280	+ 2.8584	+ 78	8	18.86	- 20.015
γ Corvi	2.7	12	10	58.211	3.0806	- 17	1	11.78	20.007
2 Canum Venaticorum	6.0	12	11	25.170	+ 3.0181	+ 41	10	59.99	- 20.067

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Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
		h m s	s	° ′ ″	″
β Chamæleontis	4.5	12 12 48.973	+ 3.4307	− 78 47 24.97	− 19.998
6 Ursæ Minoris (B.)	6.2	12 14 24.731	0.2943	+ 88 13 15.51	19.948
η Virginis	4.0	12 15 5.806	3.0691	− 0 8 40.00	20.030
α^1 Crucis	0.9	12 21 21.776	3.3058	− 62 34 41.47	19.999
δ^2 Corvi	3.1	12 24 59.957	3.1001	− 15 59 31.68	20.076
β Canum Venaticorum	4.4	12 29 16.910	+ 2.8581	+ 41 52 5.42	− 19.604
β Corvi	2.8	12 29 26.812	3.1440	− 22 52 37.08	19.942
κ Draconis	3.8	12 29 28.550	2.5823	+ 70 18 22.80	19.871
γ Virginis (*mean*)	2.9	12 36 53.854	3.0394	− 0 56 2.05	19.783
31 Comæ Berenices	5.1	12 47 7.239	2.9248	+ 28 3 7.59	19.648
32^2 Camelopardalis (H.)	5.2	12 48 25.668	+ 0.4207	+ 83 55 25.88	− 19.584
α Canum Venaticorum	3.2	12 51 37.934	2.8119	+ 38 49 33.33	19.491
δ Muscæ	3.8	12 55 47.513	4.0597	− 71 2 30.91	19.486
ε Virginis	3.1	12 57 29.862	2.9865	+ 11 27 51.34	19.404
θ Virginis	4.6	13 5 4.903	3.1025	− 5 2 14.22	19.283
20 Canum Venaticorum	4.7	13 13 19.791	+ 2.6968	+ 41 4 2.68	− 19.014
α Virginis (*Spica*)	1.1	13 20 14.367	3.1560	− 10 40 14.81	18.863
κ Octantis	5.4	13 25 35.36*	8.9332	− 85 18 16.96	18.688
ζ Virginis	3.6	13 29 54.137	3.0539	− 0 6 55.55	18.484
B. A. C. 4536	5.0	13 30 36.070	2.6825	+ 37 39 50.00	18.504
m Virginis	5.4	13 36 40.607	+ 3.1442	− 8 13 43.85	− 18.257
η Ursæ Majoris	1.9	13 43 50.290	2.3688	+ 49 46 55.98	18.046
η Bootis	2.8	13 50 12.544	2.8568	+ 18 52 7.35	18.136
θ Apodis (*var.*)	5.0	13 56 8.676	5.7129	− 76 20 35.96	17.555
β Centauri	0.7	13 57 11.002	4.1981	− 59 55 11.04	17.515
π Hydræ	3.6	14 1 0.949	+ 3.4073	− 26 13 47.25	− 17.462
α Draconis	3.7	14 1 50.687	1.6240	+ 64 49 29.89	17.268
d Bootis	4.8	14 6 6.848	2.7401	+ 25 32 11.98	17.165
κ Virginis	4.2	14 7 52.795	+ 3.1957	- 9 50 11.13	16.874
4 Ursæ Minoris	4.9	14 9 12.206	− 0.2950	+ 77 59 20.99	16.919
α Bootis (*Arcturus*)	0.2	14 11 22.411	+ 2.7353	+ 19 40 17.55	− 18.845
δ Octantis	5.0	14 11 46.491	9.1510	− 83 14 16.26	16.837
λ Bootis	4.3	14 12 48.689	2.2836	+ 46 31 11.00	16.623
λ Virginis	4.7	14 14 1.269	3.2395	− 12 56 19.23	16.695
θ Bootis	4.1	14 21 59.853	+ 2.0434	+ 52 17 6.07	16.725
5 Ursæ Minoris	4.5	14 27 42.814	− 0.1732	+ 76 6 50.18	− 16.004
ρ Bootis	3.6	14 27 46.756	+ 2.5866	+ 30 47 1.57	15.908
α^2 Centauri	[illegible]	14 33 12.479	+ 4.0481	− 60 26 51.86	15.005
33 Bootis	5.3	14 35 20.392	2.2343	+ 44 48 35.65	15.659
α Apodis	4.1	14 36 8.893	7.2555	− 78 38 46.34	15.595
ε Bootis	2.6	14 40 52.912	+ 2.6203	+ 27 28 12.69	− 15.297
α^2 Libræ	2.9	14 45 40.562	+ 3.3124	− 15 39 5.20	15.109
β Ursæ Minoris	2.2	14 50 58.349	− 0.2136	+ 74 32 22.74	14.719
β Bootis	3.7	14 58 24.322	+ 2.2600	+ 40 45 39.75	14.313
γ Scorpii	3.4	14 58 33.967	3.5030	− 24 54 45.99	14.311
δ Bootis	3.5	15 11 42.794	+ 2.4192	+ 33 39 54.56	− 13.558
β Libræ	2.9	15 11 56.824	+ 3.2238	− 9 2 11.09	13.441
γ Ursæ Minoris	3.2	15 20 52.361	− 0.1223	+ 72 10 6.45	− 12.814

MEAN PLACES FOR 1906.0. (January 0^d.553, Washington.)

Name of Star.	Magnitude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	′	″	″
μ^1 Bootis	4.5	15	20	56.366	+ 2.2662	+ 37	42	23.51	− 12.741
ρ Octantis	5.7	15	21	30.44*	13.2090	− 84	9	11.54	12.705
β Coronæ Borealis	3.9	15	23	57.211	2.4736	+ 29	25	45.87	12.540
α Coronæ Borealis	2.3	15	30	42.459	2.5392	+ 27	1	50.42	12.254
α Serpentis	2.7	15	39	38.221	2.9525	+ 6	43	15.58	11.482
ε Serpentis	3.7	15	46	7.755	+ 2.9877	+ 4	45	37.47	− 10.985
ζ Ursæ Minoris	4.6	15	47	24.008	− 2.2216	+ 78	5	2.15	10.966
ε Coronæ Borealis	4.1	15	53	41.705	+ 2.4820	+ 27	8	58.92	10.564
δ Scorpii	2.6	15	54	46.372	3.5409	− 22	21	16.50	10.451
β^1 Scorpii	2.9	15	59	58.127	3.4822	− 19	32	54.68	10.053
φ Herculis	4.2	16	5	48.478	+ 1.8894	+ 45	10	51.95	− 9.544
Groombridge 2320	5.5	16	6	3.806	0.1492	+ 68	3	27.58	9.508
δ^1 Apodis	4.9	16	6	16.463	8.8232	− 78	27	35.51	9.600
δ Ophiuchi	2.8	16	9	25.103	3.1407	− 3	27	9.56	9.446
σ Coronæ Borealis	5.3	16	11	9.486	2.2455	+ 34	5	47.83	9.238
τ Herculis	3.9	16	16	54.923	+ 1.8027	+ 46	32	12.86	− 8.686
γ Apodis	4.0	16	19	0.621	+ 9.0737	− 78	41	13.20	8.632
η Ursæ Minoris	5.0	16	20	14.480	− 1.8007	+ 75	58	19.89	8.200
η Draconis	2.8	16	22	43.011	+ 0.8062	+ 61	43	36.57	8.198
α Scorpii (*Antares*)	1.2	16	23	38.513	3.6728	− 26	13	25.74	8.211
β Herculis	2.8	16	26	10.681	+ 2.5771	+ 21	41	38.33	− 8.004
A Draconis	5.0	16	28	9.767	− 0.1333	+ 68	58	17.47	7.784
ζ Ophiuchi	2.8	16	31	58.889	+ 3.3000	− 10	22	37.56	7.489
α Trianguli Australis	2.2	16	38	42.231	6.3156	− 68	51	20.86	7.012
η Herculis	3.7	16	39	40.372	2.0554	+ 39	6	2.33	6.976
κ Ophiuchi	3.4	16	53	13.096	+ 2.8378	+ 9	31	14.63	− 5.770
ε Ursæ Minoris	4.5	16	55	34.446	− 6.2865	+ 82	11	34.47	5.562
d Herculis	5.3	16	58	8.085	+ 2.2118	+ 33	42	14.20	5.355
η Ophiuchi	2.5	17	4	59.141	3.4368	− 15	36	32.12	4.675
α^1 Herculis (*var.*)	3.2	17	10	21.652	2.7342	+ 14	29	49.29	4.278
π Herculis	3.4	17	11	46.344	+ 2.0881	+ 36	54	53.03	− 4.188
θ Ophiuchi	3.3	17	16	14.124	3.6811	− 24	54	22.21	3.840
b Ophiuchi (*var.*)	4.4	17	20	37.681	3.6602	− 24	5	21.79	3.564
δ Aræ	3.8	17	22	36.584	5.4035	− 60	36	22.39	3.376
β Draconis	3.0	17	28	18.498	1.3538	+ 52	22	14.64	2.754
α Ophiuchi	2.2	17	30	34.237	+ 2.7835	+ 12	37	40.71	− 2.802
ι Herculis	4.0	17	36	48.699	+ 1.6932	+ 46	3	21.91	2.022
ω Draconis	4.9	17	37	30.040	− 0.3552	+ 68	48	5.16	1.647
μ Herculis	3.5	17	42	46.757	+ 2.3467	+ 27	46	31.01	2.254
ψ^1 Draconis	4.8	17	43	36.482	− 1.0760	+ 72	11	42.48	1.701
θ Herculis	3.9	17	53	1.750	+ 2.0568	+ 37	15	45.39	− 0.605
γ Draconis	2.5	17	54	25.401	1.3922	+ 51	29	58.86	0.512
γ^2 Sagittarii	2.9	17	59	46.111	+ 3.8518	− 30	25	32.50	− 0.218
δ Ursæ Minoris	4.4	18	2	35.77*	− 19.4947	+ 86	36	49.87	+ 0.275
ο Herculis	3.9	18	3	52.526	+ 2.3392	+ 28	44	56.99	0.341
μ Sagittarii	4.1	18	8	8.486	+ 3.5869	− 21	5	1.97	+ 0.710
η Serpentis	3.5	18	16	26.718	3.1026	− 2	55	24.92	0.746
λ Sagittarii	2.9	18	22	10.181	+ 3.7028	− 25	28	27.07	+ 1.737

MEAN PLACES FOR 1906.0. (January $0^{\mathrm{d}}.553$, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
		h m s	s	° ′ ″	″
χ Draconis	3.8	18 22 45.213	− 1.0778	+ 72 41 31.74	+ 1.613
ι Aquilæ	4.0	18 30 5.509	+ 3.2646	− 8 18 36.74	2.309
ζ Pavonis	4.2	18 32 3.198	7.0240	− 71 30 33.74	2.630
α Lyræ (*Vega*)	0.2	18 33 45.350	2.0313	+ 38 41 44.99	3.222
β Lyræ (*var.*)	3.6	18 46 36.557	+ 2.2146	+ 33 15 11.44	4.044
50 Draconis	5.6	18 49 24.682	− 1.9151	+ 75 19 23.54	+ 4.340
σ Sagittarii	2.3	18 49 26.191	+ 3.7206	− 26 24 50.35	4.216
γ Lyræ	3.3	18 55 25.620	2.2434	+ 32 33 36.80	4.796
ζ Aquilæ	3.1	19 1 5.372	2.7568	+ 13 43 23.90	5.181
ι Lyræ	5.2	19 3 56.867	2.1411	+ 35 57 8.41	5.515
σ Octantis	5.6	19 9 50.52*	+ 99.9563	− 89 14 42.91	+ 6.014
d Sagittarii	5.0	19 12 8.135	3.5115	− 19 7 14.25	6.189
δ Draconis	3.1	19 12 32.160	0.0244	+ 67 29 46.25	6.327
θ Lyræ	4.4	19 13 6.299	+ 2.0807	+ 37 57 57.79	6.293
λ Ursæ Minoris	6.5	19 15 37.88*	− 69.3973	+ 88 59 56.54	6.504
τ Draconis	4.5	19 17 22.006	− 1.1303	+ 73 10 52.22	+ 6.749
δ Aquilæ	3.5	19 20 45.544	+ 3.0251	+ 2 55 36.96	7.000
β Cygni	3.1	19 26 55.819	2.4188	+ 27 45 42.67	7.413
κ Aquilæ	5.0	19 31 50.119	3.2292	− 7 14 12.43	7.821
β Sagittæ	4.5	19 36 49.610	2.6939	+ 17 15 28.39	8.188
γ Aquilæ	2.8	19 41 47.446	+ 2.8520	+ 10 23 1.55	+ 8.610
δ Cygni	2.9	19 42 2.261	1.8760	+ 44 54 3.64	8.677
α Aquilæ (*Altair*)	0.9	19 46 11.825	+ 2.9273	+ 8 37 10.64	9.338
ε Draconis	3.9	19 48 29.797	− 0.1836	+ 70 1 42.58	9.166
ε Pavonis	4.1	19 49 43.784	+ 7.0022	− 73 9 32.48	9.115
β Aquilæ	3.9	19 50 41.760	+ 2.9469	+ 6 10 17.73	+ 8.830
γ Sagittæ	3.6	19 54 34.591	2.6673	+ 19 14 11.27	9.634
c Sagittarii	4.5	19 56 52.779	3.6942	− 27 58 17.72	9.799
τ Aquilæ	5.7	19 59 32.896	2.9310	+ 7 0 44.94	10.018
θ Aquilæ	3.3	20 6 27.314	3.0964	− 1 6 2.36	10.514
31 Cygni	3.9	20 10 40.341	+ 1.8901	+ 46 27 21.49	+ 10.826
κ Cephei (*pr.*)	4.4	20 12 4.084	− 1.9502	+ 77 25 42.89	10.948
α^2 Capricorni	3.7	20 12 50.408	+ 3.3312	− 12 50 11.64	10.987
α Pavonis	2.1	20 18 12.908	4.7697	− 57 2 12.27	11.278
γ Cygni	2.3	20 18 51.269	2.1525	+ 39 57 19.73	11.417
π Capricorni	5.1	20 21 56.510	+ 3.4374	− 18 31 12.51	+ 11.634
ε Delphini	4.0	20 28 43.346	+ 2.8665	+ 10 59 0.22	12.090
Groombridge 3241	6.5	20 30 25.122	− 0.2325	+ 72 12 47.66	12.214
α Delphini	3.9	20 35 16.333	+ 2.7868	+ 15 34 49.01	12.583
β Pavonis	3.4	20 36 29.761	5.4537	− 66 32 29.37	12.646
α Cygni	1.4	20 38 13.628	+ 2.0445	+ 44 56 38.85	+ 12.764
ψ Capricorni	4.3	20 40 31.922	3.5581	− 25 36 31.93	12.773
ε Cygni	2.6	20 42 24.468	2.4272	+ 33 37 4.22	13.372
μ Aquarii	4.8	20 47 35.087	+ 3.2385	− 9 20 11.21	13.348
12 Year Catalogue 1879	5.3	20 51 52.509	− 2.5995	+ 80 12 0.49	13.638
ν Cygni	4.1	20 53 40.100	+ 2.2352	+ 40 48 17.67	+ 13.760
61^1 Cygni	5.4	21 2 40.929	2.6849	+ 38 17 12.51	17.585
ζ Cygni	3.3	21 8 56.105	+ 2.5517	+ 29 50 27.67	+ 14.655

MEAN PLACES FOR 1906.0. (January 0ᵈ.553, Washington.)

Name of Star.	Magnitude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.
		h	m	s	s	°	′	″	″
τ Cygni	3.8	21	11	2.304	+ 2.3936	+ 37	38	37.96	+ 15.274
α Cephei	2.6	21	16	20.236	1.4356	+ 62	11	13.67	15.198
1 Pegasi	4.3	21	17	44.350	2.7739	+ 19	24	7.33	15.292
ζ Capricorni	3.8	21	21	18.153	3.4318	− 22	49	7.53	15.449
β Aquarii	2.9	21	26	36.681	3.1605	− 5	59	6.10	15.711
β Cephei (*pr.*)	3.4	21	27	27.072	+ 0.7892	+ 70	8	52.68	+ 15.772
ξ Aquarii	4.8	21	32	44.934	3.1964	− 8	16	33.73	16.026
74 Cygni	5.0	21	33	10.857	2.4027	+ 39	59	27.50	16.081
λ¹ Octantis	5.4	21	36	34.256	9.6299	− 83	9	6.06	16.235
ε Pegasi	2.4	21	39	34.145	2.9462	+ 9	26	37.45	16.399
11 Cephei	4.8	21	40	32.833	+ 0.8912	+ 70	52	42.51	+ 16.541
π² Cygni	4.5	21	43	19.183	2.2137	+ 48	52	27.90	16.585
μ Capricorni	5.2	21	48	10.333	3.2740	− 13	59	40.61	16.821
16 Pegasi	5.1	21	48	47.072	2.7279	+ 25	28	57.67	16.855
79 Draconis	6.6	21	51	41.321	0.7231	+ 73	15	26.95	17.001
α Aquarii	3.0	22	0	57.391	+ 3.0824	− 0	46	36.15	+ 17.400
α Gruis	1.9	22	2	18.728	3.7978	− 47	24	59.74	17.286
π² Pegasi	4.3	22	5	48.710	2.6618	+ 32	43	0.25	17.591
θ Aquarii	4.4	22	11	52.453	3.1679	− 8	15	5.47	17.838
υ Octantis	6.2	22	13	51.42*	12.6458	− 86	26	45.72	18.009
γ Aquarii	4.0	22	16	48.094	+ 3.0995	− 1	51	40.03	+ 18.063
π Aquarii	4.6	22	20	28.588	3.0640	+ 0	54	0.56	18.185
σ Aquarii	4.9	22	25	40.439	3.1779	− 11	9	32.79	18.347
α Lacertæ	3.9	22	27	25.058	2.4665	+ 49	47	56.44	18.446
η Aquarii	4.2	22	30	31.587	3.0835	− 0	36	7.73	18.485
226 Cephei (B.)	5.7	22	30	37.505	+ 1.0680	+ 75	44	31.03	+ 18.541
10 Lacertæ	5.0	22	35	2.530	2.6876	+ 38	33	38.96	18.673
β Octantis	4.4	22	36	29.231	6.3779	− 81	52	28.59	18.732
ζ Pegasi	3.5	22	36	46.421	2.9912	+ 10	20	25.60	18.725
λ Pegasi	4.1	22	42	0.130	2.8862	+ 23	4	14.93	18.888
ι Cephei	3.6	22	46	19.909	+ 2.1260	+ 65	42	21.10	+ 18.894
λ Aquarii	3.8	22	47	42.670	3.1315	− 8	4	47.80	19.093
α Pis. Austr. (*Fomalhaut*)	1.3	22	52	27.511	3.3228	− 30	7	14.18	19.011
ο Andromedæ	3.8	22	57	35.623	2.7528	+ 41	49	14.36	19.298
α Pegasi (*Markab*)	2.5	23	0	4.655	2.9858	+ 14	41	57.77	19.326
φ Aquarii	4.3	23	9	27.269	+ 3.1076	− 6	33	21.15	+ 19.366
ο Cephei	5.1	23	14	45.717	2.4480	+ 67	35	49.61	19.675
τ Pegasi	4.6	23	15	58.966	2.9648	+ 23	13	32.49	19.666
θ Piscium	4.3	23	23	11.957	3.0417	+ 5	51	45.48	19.748
λ Andromedæ	3.8	23	32	57.630	2.9256	+ 45	56	55.83	19.487
ι Piscium	4.3	23	35	6.898	+ 3.0841	+ 5	7	0.34	+ 19.492
γ Cephei	3.5	23	35	29.062	2.4319	+ 77	6	27.83	20.089
i¹ Aquarii	5.2	23	39	19.634	3.1153	− 18	47	55.49	19.959
δ Sculptoris	4.6	23	44	1.829	3.1292	− 28	39	1.41	19.865
γ¹ Octantis	5.2	23	46	36.530	3.6437	− 82	32	28.44	20.000
Groombridge 4163	6.6	23	50	14.821	+ 2.8717	+ 73	53	13.96	+ 20.024
ω Piscium	4.2	23	54	29.025	+ 3.0791	+ 6	20	34.66	+ 19.933

(CONSTANTS OF STRUVE AND PETERS.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Jan.	1 25	+88 48	Jan.	6 56	+87 11	Jan.	12 14	+88 12	Jan.	18 2	+86 36	Jan.	19 14	+88 59
	s	″		s	″		s	″		s	″		s	″
0.3	40.50	32.3	0.5	60.60	43.1	0.7	12.20	59.7	0.9	17.00	54.4	1.0	44.34	66.0
1.3	39.43	32.4	1.5	60.67	43.4	1.7	12.94	59.7	1.9	17.04	54.1	2.0	44.10	65.6
2.3	38.39	32.5	2.5	60.73	43.8	2.7	13.65	59.7	2.9	17.09	53.7	3.0	43.89	65.3
3.3	37.41	32.5	3.5	60.80	44.1	3.7	14.34	59.7	3.9	17.14	53.4	4.0	43.68	65.0
4.3	36.47	32.6	4.5	60.87	44.4	4.7	14.99	59.7	4.9	17.19	53.1	5.0	43.43	64.7
5.3	35.56	32.7	5.5	60.95	44.6	5.7	15.64	59.7	5.9	17.22	52.8	6.0	43.14	64.4
6.3	34.66	32.8	6.5	61.03	44.9	6.7	16.30	59.7	6.9	17.24	52.5	7.0	42.82	64.1
7.3	33.72	32.9	7.5	61.12	45.2	7.7	16.99	59.6	7.9	17.25	52.2	8.0	42.47	63.8
8.3	32.75	33.0	8.5	61.23	45.5	8.7	17.72	59.6	8.9	17.28	51.8	9.0	42.11	63.5
9.3	31.71	33.1	9.5	61.34	45.9	9.7	18.48	59.6	9.9	17.31	51.5	9.9	41.78	63.2
10.3	30.60	33.2	10.5	61.42	46.2	10.7	19.28	59.6	10.9	17.36	51.1	10.9	41.51	62.8
11.3	29.46	33.3	11.5	61.48	46.6	11.7	20.08	59.7	11.9	17.44	50.7	11.9	41.30	62.4
12.2	28.28	33.4	12.5	61.53	47.0	12.7	20.88	59.7	12.9	17.55	50.3	12.9	41.17	62.1
13.2	27.11	33.4	13.5	61.53	47.3	13.7	21.67	59.8	13.9	17.67	50.0	13.9	41.13	61.7
14.2	25.96	33.4	14.5	61.50	47.7	14.7	22.42	59.9	14.9	17.81	49.6	14.9	41.15	61.3
15.2	24.85	33.4	15.5	61.46	48.0	15.7	23.12	60.0	15.9	17.95	49.3	15.9	41.22	61.0
16.2	23.80	33.4	16.5	61.41	48.3	16.7	23.79	60.1	16.9	18.10	49.0	16.9	41.30	60.6
17.2	22.81	33.4	17.5	61.36	48.6	17.7	24.42	60.2	17.9	18.23	48.7	17.9	41.38	60.3
18.2	21.84	33.4	18.5	61.31	48.9	18.7	25.03	60.3	18.9	18.35	48.5	18.9	41.44	60.0
19.2	20.92	33.4	19.5	61.28	49.2	19.7	25.64	60.4	19.9	18.47	48.2	19.9	41.45	59.7
20.2	20.00	33.4	20.5	61.27	49.5	20.7	26.27	60.5	20.9	18.57	47.9	20.9	41.43	59.4
21.2	19.02	33.4	21.5	61.25	49.8	21.7	26.93	60.5	21.9	18.68	47.6	21.9	41.39	59.1
22.2	18.02	33.5	22.5	61.24	50.1	22.7	27.61	60.6	22.9	18.79	47.2	22.9	41.36	58.8
23.2	16.96	33.5	23.5	61.22	50.4	23.7	28.33	60.7	23.9	18.92	46.9	23.9	41.39	58.4
24.2	15.84	33.5	24.4	61.19	50.8	24.7	29.08	60.8	24.9	19.07	46.5	24.9	41.46	58.1
25.2	14.69	33.5	25.4	61.12	51.2	25.7	29.82	60.9	25.9	19.25	46.2	25.9	41.63	57.7
26.2	13.51	33.4	26.4	61.01	51.5	26.7	30.54	61.1	26.9	19.46	45.9	26.9	41.89	57.4
27.2	12.34	33.4	27.4	60.87	51.9	27.7	31.25	61.2	27.9	19.69	45.6	27.9	42.24	57.0
28.2	11.21	33.3	28.4	60.70	52.2	28.7	31.92	61.4	28.9	19.93	45.3	28.9	42.66	56.6
29.2	10.13	33.2	29.4	60.53	52.5	29.7	32.54	61.6	29.9	20.18	45.0	29.9	43.12	56.3
30.2	9.10	33.1	30.4	60.34	52.8	30.6	33.12	61.8	30.9	20.42	44.7	30.9	43.58	56.0
31.2	8.14	33.9	31.4	60.16	53.1	31.6	33.66	62.0	31.9	20.66	44.5	31.9	44.03	55.7
32.2	7.22	32.9	32.4	59.98	53.3	32.6	34.19	62.1	32.9	20.88	44.2	32.9	44.45	55.4

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Feb.	1 24	+88 48	Feb.	6 56	+87 11	Feb.	12 14	+88 13	Feb.	18 2	+86 36	Feb.	19 14	+88 59
	s	″		s	″		s	″		s	″		s	″
1.2	67.22	32.9	1.4	59.98	53.3	1.6	34.19	2.1	1.9	20.88	44.2	1.9	44.45	55.4
2.2	66.31	32.8	2.4	59.83	53.6	2.6	34.72	2.3	2.9	21.09	44.0	2.9	44.83	55.2
3.2	65.41	32.7	3.4	59.68	53.9	3.6	35.27	2.4	3.9	21.29	43.8	3.9	45.18	54.9
4.2	64.48	32.6	4.4	59.54	54.2	4.6	35.84	2.6	4.9	21.50	43.5	4.9	45.50	54.6
5.2	63.50	32.6	5.4	59.41	54.5	5.6	36.44	2.7	5.9	21.71	43.2	5.9	45.83	54.3
6.2	62.48	32.5	6.4	59.26	54.8	6.6	37.07	2.9	6.9	21.93	42.9	6.9	46.22	54.0
7.2	61.41	32.4	7.4	59.09	55.1	7.6	37.71	3.1	7.9	22.18	42.7	7.9	46.65	53.6
8.2	60.32	32.3	8.4	58.89	55.4	8.6	38.35	3.3	8.9	22.45	42.4	8.9	47.15	53.3
9.2	59.22	32.2	9.4	58.67	55.7	9.6	38.97	3.5	9.9	22.75	42.1	9.9	47.74	52.9
10.2	58.16	32.0	10.4	58.42	56.0	10.6	39.56	3.8	10.9	23.04	41.8	10.9	48.40	52.6
11.2	57.14	31.9	11.4	58.15	56.3	11.6	40.11	4.0	11.9	23.35	41.6	11.9	49.11	52.3
12.2	56.18	31.7	12.4	57.86	56.6	12.6	40.60	4.3	12.9	23.66	41.4	12.9	49.86	52.0
13.2	55.29	31.5	13.4	57.58	56.8	13.6	41.04	4.5	13.9	23.95	41.2	13.9	50.59	51.8
14.2	54.45	31.3	14.4	57.30	57.1	14.6	41.45	4.8	14.9	24.25	41.0	14.9	51.30	51.5
15.2	53.65	31.1	15.4	57.04	57.3	15.6	41.85	5.0	15.8	24.52	40.9	15.9	51.97	51.3
16.2	52.89	31.0	16.4	56.79	57.5	16.6	42.25	5.3	16.8	24.78	40.7	16.9	52.59	51.0
17.2	52.11	30.8	17.4	56.56	57.7	17.6	42.67	5.5	17.8	25.04	40.5	17.9	53.18	50.8
18.2	51.30	30.7	18.4	56.33	58.0	18.6	43.12	5.7	18.8	25.30	40.3	18.9	53.77	50.5
19.1	50.45	30.5	19.4	56.09	58.2	19.6	43.59	5.9	19.8	25.58	40.1	19.9	54.38	50.3
20.1	49.55	30.4	20.4	55.85	58.5	20.6	44.08	6.2	20.8	25.86	39.9	20.9	55.05	50.0
21.1	48.62	30.2	21.4	55.58	58.7	21.6	44.58	6.4	21.8	26.18	39.6	21.9	55.79	49.7
22.1	47.67	30.0	22.4	55.28	59.0	22.6	45.07	6.7	22.8	26.52	39.4	22.9	56.62	49.4
23.1	46.72	29.8	23.4	54.94	59.3	23.6	45.53	7.0	23.8	26.87	39.2	23.9	57.53	49.1
24.1	45.80	29.6	24.4	54.59	59.5	24.6	45.95	7.3	24.8	27.25	39.1	24.9	58.50	48.8
25.1	44.95	29.4	25.4	54.21	59.7	25.6	46.32	7.6	25.8	27.62	38.9	25.9	59.53	48.6
26.1	44.17	29.1	26.4	53.83	59.9	26.6	46.64	7.9	26.8	27.99	38.8	26.9	60.56	48.4
27.1	43.46	28.8	27.4	53.44	60.1	27.6	46.93	8.2	27.8	28.36	38.7	27.9	61.59	48.2
28.1	42.79	28.6	28.4	53.07	60.3	28.6	47.18	8.5	28.8	28.70	38.6	28.9	62.57	48.0
29.1	42.18	28.3	29.3	52.70	60.5	29.6	47.42	8.8	29.8	29.04	38.5	29.9	63.52	47.8
30.1	41.60	28.1	30.3	52.36	60.6	30.6	47.67	9.0	30.8	29.36	38.4	30.9	64.41	47.6

(CONSTANTS OF STRUVE AND PETERS.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Mar.	1 24	+88 48	Mar.	6 56	+87 12	Mar.	12 14	+88 13	Mar.	18 2	+86 36	Mar.	19 15	+88 59
	s	″		s	″		s	″		s	″		s	″
1.1	42.18	28.3	1.3	52.70	0.5	1.6	47.42	8.8	1.8	29.04	38.5	1.9	3.52	47.8
2.1	41.60	28.1	2.3	52.36	0.6	2.6	47.67	9.0	2.8	29.36	38.4	2.9	4.41	47.6
3.1	40.98	27.9	3.3	52.04	0.8	3.6	47.94	9.3	3.8	29.67	38.3	3.9	5.27	47.5
4.1	40.34	27.6	4.3	51.72	1.0	4.6	48.23	9.6	4.8	29.99	38.2	4.9	6.11	47.3
5.1	39.67	27.4	5.3	51.40	1.1	5.6	48.54	9.8	5.8	30.31	38.0	5.9	6.98	47.1
6.1	38.96	27.2	6.3	51.06	1.3	6.6	48.87	10.1	6.8	30.65	37.9	6.8	7.90	46.8
7.1	38.23	27.0	7.3	50.71	1.5	7.6	49.19	10.4	7.8	31.00	37.8	7.8	8.88	46.6
8.1	37.48	26.7	8.3	50.34	1.7	8.6	49.50	10.7	8.8	31.38	37.6	8.8	9.92	46.4
9.1	36.76	26.5	9.3	49.93	1.9	9.5	49.78	11.1	9.8	31.78	37.5	9.8	11.04	46.2
10.1	36.10	26.2	10.3	49.50	2.1	10.5	50.01	11.4	10.8	32.18	37.4	10.8	12.20	46.0
11.1	35.49	25.8	11.3	49.07	2.2	11.5	50.18	11.8	11.8	32.57	37.4	11.8	13.39	45.8
12.1	34.96	25.5	12.3	48.64	2.3	12.5	50.31	12.1	12.8	32.95	37.3	12.8	14.57	45.7
13.1	34.50	25.2	13.3	48.21	2.4	13.5	50.40	12.5	13.8	33.31	37.3	13.8	15.73	45.6
14.1	34.10	24.9	14.3	47.80	2.5	14.5	50.47	12.8	14.8	33.66	37.3	14.8	16.85	45.5
15.1	33.74	24.7	15.3	47.42	2.6	15.5	50.53	13.1	15.8	34.00	37.3	15.8	17.91	45.4
16.1	33.38	24.4	16.3	47.04	2.7	16.5	50.60	13.4	16.8	34.33	37.3	16.8	18.92	45.2
17.1	33.01	24.2	17.3	46.67	2.8	17.5	50.69	13.6	17.8	34.65	37.2	17.8	19.90	45.1
18.1	32.61	23.9	18.3	46.33	2.9	18.5	50.81	13.9	18.8	34.97	37.2	18.8	20.88	45.0
19.1	32.17	23.7	19.3	45.96	3.0	19.5	50.95	14.2	19.8	35.31	37.2	19.8	21.89	44.9
20.1	31.68	23.4	20.3	45.58	3.1	20.5	51.10	14.5	20.8	35.67	37.1	20.8	22.95	44.7
21.1	31.18	23.1	21.3	45.18	3.3	21.5	51.24	14.9	21.8	36.05	37.1	21.8	24.08	44.6
22.1	30.68	22.8	22.3	44.74	3.4	22.5	51.36	15.2	22.8	36.44	37.0	22.8	25.29	44.5
23.1	30.21	22.5	23.3	44.29	3.5	23.5	51.45	15.5	23.7	36.86	37.0	23.8	26.57	44.3
24.1	29.80	22.2	24.3	43.83	3.6	24.5	51.49	15.9	24.7	37.26	37.0	24.8	27.88	44.2
25.1	29.46	21.8	25.3	43.35	3.6	25.5	51.47	16.2	25.7	37.67	37.1	25.8	29.22	44.2
26.0	29.19	21.5	26.3	42.86	3.7	26.5	51.41	16.6	26.7	38.05	37.1	26.8	30.54	44.1
27.0	29.00	21.1	27.3	42.40	3.7	27.5	51.31	16.9	27.7	38.43	37.2	27.8	31.83	44.1
28.0	28.86	20.8	28.3	41.96	3.7	28.5	51.19	17.2	28.7	38.79	37.3	28.8	33.06	44.0
29.0	28.75	20.5	29.3	41.53	3.7	29.5	51.07	17.5	29.7	39.12	37.3	29.8	34.22	44.0
30.0	28.64	20.2	30.3	41.13	3.7	30.5	50.97	17.8	30.7	39.46	37.4	30.8	35.33	44.0
31.0	28.50	19.9	31.3	40.73	3.7	31.5	50.88	18.1	31.7	39.78	37.4	31.8	36.41	43.9
32.0	28.34	19.6	32.3	40.35	3.7	32.5	50.82	18.4	32.7	40.11	37.5	32.8	37.48	43.9

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Apr.	1 24	+88 48	Apr.	6 56	+87 12	Apr.	12 14	+88 13	Apr.	18 2	+86 36	Apr.	19 15	+88 59
	s	″		s	″		s	″		s	″		s	″
1.0	28.34	19.6	1.3	40.35	3.7	1.5	50.82	18.4	1.7	40.11	37.5	1.8	37.48	43.9
2.0	28.14	19.4	2.3	39.97	3.7	2.5	50.79	18.6	2.7	40.44	37.5	2.8	38.57	43.8
3.0	27.92	19.1	3.3	39.56	3.8	3.5	50.76	18.9	3.7	40.78	37.6	3.8	39.71	43.8
4.0	27.69	18.8	4.3	39.15	3.8	4.5	50.71	19.2	4.7	41.14	37.6	4.8	40.91	43.7
5.0	27.47	18.5	5.3	38.72	3.8	5.5	50.64	19.6	5.7	41.52	37.7	5.8	42.18	43.7
6.0	27.30	18.1	6.3	38.26	3.9	6.5	50.53	19.9	6.7	41.89	37.8	6.8	43.49	43.6
7.0	27.20	17.8	7.2	37.78	3.9	7.5	50.36	20.3	7.7	42.27	37.9	7.8	44.81	43.6
8.0	27.16	17.4	8.2	37.32	3.8	8.5	50.15	20.6	8.7	42.64	38.0	8.8	46.12	43.7
9.0	27.19	17.1	9.2	36.87	3.8	9.5	49.90	20.9	9.7	43.00	38.1	9.8	47.41	43.7
10.0	27.29	16.8	10.2	36.44	3.7	10.5	49.61	21.2	10.7	43.33	38.3	10.8	48.64	43.8
11.0	27.44	16.4	11.2	36.01	3.6	11.5	49.32	21.5	11.7	43.63	38.4	11.7	49.81	43.8
12.0	27.62	16.1	12.2	35.63	3.5	12.5	49.03	21.8	12.7	43.93	38.6	12.7	50.91	43.9
13.0	27.79	15.9	13.2	35.27	3.4	13.5	48.76	22.1	13.7	44.21	38.8	13.7	51.96	43.9
13.9	27.93	15.6	14.2	34.91	3.4	14.5	48.51	22.4	14.7	44.49	38.9	14.7	52.98	44.0
14.9	28.04	15.3	15.2	34.56	3.3	15.4	48.29	22.6	15.7	44.77	39.0	15.7	54.02	44.0
15.9	28.11	15.0	16.2	34.18	3.3	16.4	48.09	22.9	16.7	45.07	39.1	16.7	55.09	44.0
16.9	28.15	14.7	17.2	33.81	3.2	17.4	47.89	23.1	17.7	45.38	39.2	17.7	56.21	44.1
17.9	28.18	14.4	18.2	33.42	3.2	18.4	47.68	23.4	18.7	45.71	39.4	18.7	57.39	44.1
18.9	28.24	14.1	19.2	32.99	3.1	19.4	47.45	23.7	19.7	46.05	39.5	19.7	58.63	44.1
19.9	28.34	13.8	20.2	32.55	3.1	20.4	47.16	24.0	20.7	46.40	39.6	20.7	59.91	44.2
20.9	28.50	13.5	21.2	32.10	3.0	21.4	46.81	24.3	21.7	46.74	39.8	21.7	61.20	44.3
21.9	28.74	13.1	22.2	31.66	2.9	22.4	46.43	24.6	22.7	47.07	40.0	22.7	62.48	44.4
22.9	29.05	12.8	23.2	31.22	2.7	23.4	46.01	24.9	23.7	47.38	40.3	23.7	63.73	44.5
23.9	29.41	12.5	24.2	30.81	2.6	24.4	45.57	25.2	24.7	47.67	40.5	24.7	64.91	44.6
24.9	29.82	12.2	25.2	30.42	2.4	25.4	45.12	25.4	25.7	47.94	40.7	25.7	66.03	44.8
25.9	30.25	11.9	26.2	30.07	2.2	26.4	44.68	25.6	26.7	48.17	40.9	26.7	67.06	44.9
26.9	30.65	11.6	27.2	29.73	2.1	27.4	44.26	25.8	27.7	48.41	41.1	27.7	68.04	45.1
27.9	31.04	11.4	28.2	29.40	1.9	28.4	43.88	26.0	28.7	48.65	41.3	28.7	68.99	45.2
28.9	31.38	11.1	29.2	29.09	1.8	29.4	43.52	26.2	29.6	48.88	41.5	29.7	69.95	45.3
29.9	31.69	10.9	30.2	28.76	1.7	30.4	43.17	26.5	30.6	49.13	41.7	30.7	70.93	45.4
30.9	31.98	10.6	31.2	28.42	1.6	31.4	42.82	26.7	31.6	49.39	41.9	31.7	71.95	45.5
31.9	32.27	10.3	32.2	28.06	1.5	32.4	42.46	27.0	32.6	49.66	42.1	32.7	73.02	45.6

(CONSTANTS OF STRUVE AND PETERS.

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*a* Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	*δ* Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
May	1 24	+88 48	May	6 56	+87 11	May	12 14	+88 13	May	18 2	+86 36	May	19 16	+88 59
	s	″		s	″		s	″		s	″		s	″
1.9	32.27	10.3	1.2	28.42	61.6	1.4	42.82	26.7	1.6	49.39	41.9	1.7	11.95	45.5
2.9	32.59	10.0	2.2	28.06	61.5	2.4	42.46	27.0	2.6	49.66	42.1	2.7	13.02	45.6
3.9	32.96	9.7	3.2	27.71	61.3	3.4	42.07	27.2	3.6	49.93	42.3	3.7	14.13	45.7
4.9	33.40	9.4	4.2	27.32	61.2	4.4	41.63	27.5	4.6	50.20	42.5	4.7	15.26	45.9
5.9	33.90	9.2	5.2	26.94	61.0	5.4	41.15	27.7	5.6	50.47	42.8	5.7	16.38	46.0
6.9	34.49	8.9	6.2	26.57	60.8	6.4	40.62	28.0	6.6	50.72	43.0	6.7	17.47	46.2
7.9	35.14	8.6	7.2	26.23	60.6	7.4	40.06	28.2	7.6	50.94	43.3	7.7	18.51	46.4
8.9	35.80	8.3	8.2	25.90	60.4	8.4	39.49	28.4	8.6	51.15	43.6	8.7	19.48	46.6
9.9	36.47	8.1	9.2	25.61	60.2	9.4	38.91	28.6	9.6	51.33	43.9	9.7	20.37	46.8
10.9	37.11	7.9	10.2	25.33	59.9	10.4	38.36	28.7	10.6	51.49	44.2	10.7	21.19	47.0
11.9	37.72	7.7	11.2	25.08	59.7	11.4	37.83	28.9	11.6	51.65	44.4	11.7	21.95	47.2
12.9	38.28	7.5	12.2	24.86	59.5	12.4	37.34	29.0	12.6	51.80	44.7	12.7	22.71	47.4
13.9	38.81	7.3	13.1	24.61	59.3	13.4	36.87	29.2	13.6	51.97	44.9	13.7	23.48	47.6
14.9	39.32	7.1	14.1	24.36	59.2	14.4	36.41	29.4	14.6	52.14	45.1	14.7	24.28	47.7
15.9	39.82	6.8	15.1	24.11	59.0	15.4	35.95	29.5	15.6	52.33	45.4	15.7	25.12	47.9
16.9	40.36	6.6	16.1	23.83	58.8	16.4	35.47	29.7	16.6	52.53	45.6	16.7	26.04	48.1
17.9	40.94	6.3	17.1	23.52	58.6	17.4	34.96	29.9	17.6	52.74	45.9	17.7	26.99	48.3
18.9	41.59	6.1	18.1	23.22	58.4	18.4	34.40	30.1	18.6	52.94	46.1	18.7	27.95	48.5
19.9	42.32	5.8	19.1	22.91	58.2	19.4	33.80	30.3	19.6	53.13	46.4	19.6	28.91	48.7
20.9	43.11	5.6	20.1	22.62	57.9	20.4	33.17	30.4	20.6	53.31	46.8	20.6	29.82	49.0
21.9	43.94	5.4	21.1	22.35	57.6	21.3	32.51	30.6	21.6	53.47	47.1	21.6	30.67	49.2
22.9	44.79	5.2	22.1	22.10	57.4	22.3	31.85	30.7	22.6	53.59	47.4	22.6	31.44	49.5
23.9	45.63	5.0	23.1	21.88	57.1	23.3	31.19	30.8	23.6	53.70	47.7	23.6	32.13	49.8
24.9	46.45	4.8	24.1	21.68	56.8	24.3	30.56	30.9	24.6	53.79	48.0	24.6	32.75	50.0
25.9	47.23	4.7	25.1	21.51	56.5	25.3	29.96	31.0	25.6	53.87	48.3	25.6	33.32	50.3
26.9	47.95	4.5	26.1	21.35	56.3	26.3	29.39	31.0	26.6	53.95	48.6	26.6	33.88	50.5
27.9	48.64	4.4	27.1	21.19	56.0	27.3	28.85	31.1	27.6	54.03	48.9	27.6	34.45	50.8
28.9	49.31	4.2	28.1	21.01	55.8	28.3	28.32	31.2	28.6	54.13	49.2	28.6	35.05	51.0
29.9	50.01	4.0	29.1	20.83	55.6	29.3	27.78	31.3	29.6	54.24	49.4	29.6	35.69	51.2
30.9	50.74	3.9	30.1	20.64	55.4	30.3	27.23	31.4	30.6	54.36	49.7	30.6	36.37	51.4
31.9	51.53	3.7	31.1	20.43	55.1	31.3	26.65	31.5	31.6	54.48	50.0	31.6	37.06	51.7
32.9	52.38	3.5	32.1	20.22	54.9	32.3	26.01	31.6	32.6	54.58	50.3	32.6	37.76	51.9

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
June	1 24	+88 48	June	6 56	+87 11	June	12 14	+88 13	June	18 2	+86 36	June	19 16	+88 59
	s	″		s	″		s	″		s	″		s	″
1.9	52.38	3.5	1.1	20.22	54.9	1.3	26.01	31.6	1.6	54.58	50.3	1.6	37.76	51.9
2.9	53.30	3.3	2.1	20.03	54.6	2.3	25.34	31.7	2.6	54.68	50.6	2.6	38.42	52.2
3.9	54.25	3.1	3.1	19.85	54.3	3.3	24.64	31.8	3.6	54.75	51.0	3.6	39.03	52.5
4.9	55.26	3.0	4.1	19.69	54.0	4.3	23.91	31.9	4.6	54.80	51.3	4.6	39.58	52.8
5.9	56.28	2.9	5.1	19.57	53.7	5.3	23.19	31.9	5.5	54.83	51.7	5.6	40.03	53.2
6.9	57.26	2.8	6.1	19.49	53.3	6.3	22.49	32.0	6.5	54.83	52.0	6.6	40.40	53.5
7.8	58.22	2.7	7.1	19.41	53.0	7.3	21.82	32.0	7.5	54.81	52.3	7.6	40.72	53.8
8.8	59.12	2.6	8.1	19.35	52.7	8.3	21.18	32.0	8.5	54.80	52.6	8.6	41.00	54.1
9.8	59.98	2.5	9.1	19.31	52.5	9.3	20.58	32.0	9.5	54.78	52.9	9.6	41.28	54.4
10.8	60.80	2.4	10.1	19.26	52.2	10.3	20.01	32.0	10.5	54.77	53.2	10.6	41.57	54.6
11.8	61.59	2.3	11.1	19.20	51.9	11.3	19.44	32.0	11.5	54.78	53.5	11.6	41.89	54.9
12.8	62.41	2.2	12.1	19.12	51.7	12.3	18.86	32.1	12.5	54.81	53.8	12.6	42.27	55.2
13.8	63.28	2.1	13.1	19.01	51.4	13.3	18.27	32.1	13.5	54.83	54.1	13.6	42.70	55.4
14.8	64.19	2.0	14.1	18.90	51.1	14.3	17.65	32.1	14.5	54.87	54.4	14.6	43.16	55.7
15.8	65.16	1.9	15.1	18.79	50.8	15.3	16.98	32.2	15.5	54.89	54.7	15.6	43.60	56.0
16.8	66.20	1.8	16.1	18.68	50.5	16.3	16.28	32.2	16.5	54.91	55.0	16.6	44.01	56.3
17.8	67.28	1.7	17.1	18.69	50.2	17.3	15.54	32.2	17.5	54.90	55.4	17.6	44.36	56.6
18.8	68.37	1.6	18.0	18.54	49.9	18.3	14.80	32.1	18.5	54.86	55.7	18.6	44.65	57.0
19.8	69.46	1.6	19.0	18.52	49.5	19.3	14.06	32.1	19.5	54.80	56.1	19.6	44.84	57.3
20.8	70.53	1.5	20.0	18.52	49.2	20.3	13.35	32.0	20.5	54.72	56.4	20.6	44.95	57.7
21.8	71.54	1.5	21.0	18.54	48.9	21.3	12.67	32.0	21.5	54.62	56.7	21.6	44.99	58.0
22.8	72.50	1.5	22.0	18.57	48.6	22.3	12.03	31.9	22.5	54.53	57.0	22.6	45.01	58.3
23.8	73.41	1.5	23.0	18.62	48.3	23.3	11.44	31.8	23.5	54.44	57.3	23.5	45.03	58.6
24.8	74.30	1.5	24.0	18.66	48.0	24.3	10.87	31.7	24.5	54.35	57.6	24.5	45.05	58.9
25.8	75.18	1.5	25.0	18.68	47.8	25.3	10.30	31.7	25.5	54.28	57.8	25.5	45.12	59.1
26.8	76.08	1.4	26.0	18.69	47.5	26.3	9.72	31.6	26.5	54.22	58.1	26.5	45.22	59.4
27.8	77.02	1.4	27.0	18.70	47.2	27.2	9.12	31.6	27.5	54.16	58.4	27.5	45.36	59.7
28.8	78.02	1.3	28.0	18.69	46.9	28.2	8.49	31.5	28.5	54.09	58.7	28.5	45.50	60.0
29.8	79.08	1.3	29.0	18.69	46.6	29.2	7.81	31.5	29.5	54.01	59.0	29.5	45.62	60.3
30.8	80.19	1.3	30.0	18.72	46.3	30.2	7.11	31.4	30.5	53.91	59.4	30.5	45.69	60.7
31.8	81.34	1.3	31.0	18.76	45.9	31.2	6.39	31.3	31.5	53.81	59.7	31.5	45.69	61.0

(CONSTANTS OF STRUVE AND PETERS.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
July	1 25	+88 48	July	6 56	+87 11	July	12 13	+88 13	July	18 2	+86 36	July	19 16	+89 0
	s	″		s	″		s	″		s	″		s	″
1.8	21.34	1.3	1.0	18.76	45.9	1.2	66.39	31.3	1.5	53.81	59.7	1.5	45.69	1.0
2.8	22.50	1.3	2.0	18.83	45.6	2.2	65.67	31.2	2.5	53.67	60.1	2.5	45.61	1.4
3.8	23.64	1.3	3.0	18.93	45.2	3.2	64.96	31.1	3.5	53.50	60.4	3.5	45.44	1.7
4.8	24.75	1.4	4.0	19.06	44.9	4.2	64.28	31.0	4.5	53.32	60.7	4.5	45.20	2.1
5.8	25.80	1.5	5.0	19.20	44.6	5.2	63.65	30.9	5.5	53.13	61.0	5.5	44.91	2.4
6.8	26.79	1.5	6.0	19.36	44.3	6.2	63.05	30.7	6.5	52.94	61.3	6.5	44.60	2.7
7.8	27.74	1.6	6.9	19.52	44.0	7.2	62.48	30.5	7.5	52.76	61.6	7.5	44.32	3.0
8.8	28.65	1.6	7.9	19.66	43.7	8.2	61.94	30.4	8.5	52.60	61.8	8.5	44.07	3.3
9.8	29.55	1.7	8.9	19.80	43.4	9.2	61.40	30.3	9.5	52.45	62.1	9.5	43.86	3.6
10.8	30.48	1.7	9.9	19.91	43.2	10.2	60.86	30.2	10.5	52.31	62.3	10.5	43.69	3.9
11.8	31.45	1.8	10.9	20.01	42.9	11.2	60.30	30.0	11.5	52.17	62.6	11.5	43.55	4.2
12.8	32.47	1.8	11.9	20.10	42.6	12.2	59.68	29.9	12.4	52.04	62.9	12.5	43.42	4.5
13.8	33.55	1.8	12.9	20.19	42.3	13.2	59.04	29.8	13.4	51.89	63.2	13.5	43.27	4.8
14.8	34.66	1.9	13.9	20.31	42.0	14.2	58.38	29.7	14.4	51.72	63.5	14.5	43.08	5.2
15.7	35.81	1.9	14.9	20.45	41.6	15.2	57.70	29.5	15.4	51.52	63.8	15.5	42.81	5.5
16.7	36.96	2.0	15.9	20.60	41.3	16.2	57.03	29.3	16.4	51.30	64.1	16.5	42.46	5.9
17.7	38.06	2.1	16.9	20.79	41.0	17.2	56.39	29.1	17.4	51.07	64.4	17.5	42.03	6.3
18.7	39.12	2.3	17.9	21.02	40.6	18.2	55.78	28.9	18.4	50.81	64.7	18.5	41.53	6.6
19.7	40.14	2.4	18.9	21.26	40.3	19.2	55.20	28.7	19.4	50.56	65.0	19.5	40.98	6.9
20.7	41.09	2.5	19.9	21.50	40.0	20.2	54.68	28.4	20.4	50.31	65.2	20.5	40.43	7.2
21.7	42.00	2.7	20.9	21.75	39.8	21.2	54.19	28.2	21.4	50.06	65.4	21.5	39.88	7.5
22.7	42.88	2.8	21.9	21.99	39.5	22.2	53.71	28.0	22.4	49.82	65.7	22.5	39.37	7.8
23.7	43.77	2.9	22.9	22.21	39.3	23.2	53.23	27.8	23.4	49.59	65.9	23.5	38.89	8.0
24.7	44.68	3.0	23.9	22.41	39.0	24.2	52.74	27.6	24.4	49.38	66.1	24.5	38.45	8.3
25.7	45.64	3.1	24.9	22.62	38.7	25.2	52.22	27.4	25.4	49.16	66.3	25.5	38.02	8.6
26.7	46.66	3.2	25.9	22.82	38.5	26.2	51.67	27.3	26.4	48.93	66.6	26.5	37.59	8.9
27.7	47.72	3.3	26.9	23.04	38.2	27.2	51.09	27.1	27.4	48.69	66.9	27.5	37.11	9.2
28.7	48.83	3.5	27.9	23.26	37.9	28.2	50.48	26.9	28.4	48.42	67.2	28.5	36.58	9.6
29.7	49.94	3.6	28.9	23.51	37.6	29.2	49.88	26.6	29.4	48.13	67.4	29.5	35.98	9.9
30.7	51.04	3.8	29.9	23.80	37.2	30.2	49.29	26.4	30.4	47.83	67.7	30.5	35.30	10.2
31.7	52.10	4.0	30.9	24.10	36.9	31.2	48.72	26.1	31.4	47.51	68.0	31.4	34.53	10.6
32.7	53.12	4.2	31.9	24.42	36.6	32.1	48.20	25.8	32.4	47.17	68.2	32.4	33.70	10.9

(CONSTANTS OF STRUVE AND PETERS.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Aug.	1 25	+88 48	Aug.	6 56	+87 11	Aug.	12 13	+88 13	Aug.	18 2	+86 37	Aug.	19 16	+89 0
	s	″		s	″		s	″		s	″		s	″
1.7	53.12	4.2	1.9	24.77	36.3	1.1	48.20	25.8	1.4	47.17	8.2	1.4	33.70	10.9
2.7	54.06	4.4	2.9	25.12	36.1	2.1	47.73	25.5	2.4	46.84	8.4	2.4	32.85	11.2
3.7	54.95	4.6	3.9	25.45	35.9	3.1	47.30	25.3	3.4	46.50	8.6	3.4	32.01	11.5
4.7	55.79	4.8	4.9	25.78	35.6	4.1	46.89	25.0	4.4	46.19	8.8	4.4	31.19	11.7
5.7	56.61	5.0	5.9	26.09	35.4	5.1	46.49	24.8	5.4	45.89	9.0	5.4	30.40	12.0
6.7	57.43	5.2	6.9	26.37	35.2	6.1	46.10	24.5	6.4	45.61	9.1	6.4	29.67	12.2
7.7	58.29	5.4	7.9	26.64	35.0	7.1	45.70	24.3	7.4	45.34	9.3	7.4	29.00	12.5
8.7	59.18	5.6	8.9	26.92	34.7	8.1	45.26	24.0	8.4	45.06	9.5	8.4	28.34	12.7
9.7	60.13	5.7	9.9	27.20	34.4	9.1	44.79	23.8	9.4	44.78	9.8	9.4	27.67	13.0
10.7	61.11	5.9	10.9	27.51	34.1	10.1	44.30	23.5	10.4	44.48	10.0	10.4	26.98	13.3
11.7	62.14	6.1	11.9	27.83	33.8	11.1	43.78	23.2	11.4	44.17	10.2	11.4	26.22	13.6
12.7	63.16	6.3	12.9	28.18	33.6	12.1	43.27	22.9	12.4	43.83	10.5	12.4	25.39	13.9
13.7	64.15	6.6	13.9	28.57	33.3	13.1	42.78	22.6	13.4	43.47	10.7	13.4	24.47	14.2
14.7	65.10	6.8	14.9	28.97	33.0	14.1	42.32	22.3	14.4	43.10	10.9	14.4	23.48	14.5
15.7	65.99	7.1	15.9	29.38	32.8	15.1	41.91	22.0	15.4	42.72	11.0	15.4	22.45	14.8
16.7	66.82	7.3	16.9	29.79	32.6	16.1	41.56	21.6	16.4	42.33	11.2	16.4	21.39	15.1
17.7	67.58	7.6	17.9	30.20	32.4	17.1	41.24	21.3	17.3	41.97	11.3	17.4	20.34	15.3
18.7	68.31	7.9	18.9	30.58	32.2	18.1	40.94	20.9	18.3	41.60	11.4	18.4	19.31	15.5
19.6	69.02	8.1	19.9	30.95	32.0	19.1	40.65	20.6	19.3	41.25	11.6	19.4	18.34	15.7
20.6	69.75	8.4	20.9	31.32	31.8	20.1	40.36	20.3	20.3	40.92	11.7	20.4	17.40	16.0
21.6	70.52	8.6	21.9	31.68	31.6	21.1	40.05	20.0	21.3	40.59	11.8	21.4	16.48	16.2
22.6	71.33	8.8	22.9	32.04	31.4	22.1	39.71	19.8	22.3	40.26	12.0	22.4	15.57	16.4
23.6	72.19	9.0	23.9	32.42	31.2	23.1	39.34	19.5	23.3	39.92	12.2	23.4	14.65	16.6
24.6	73.09	9.3	24.9	32.82	30.9	24.1	38.95	19.2	24.3	39.56	12.3	24.4	13.68	16.9
25.6	74.00	9.6	25.9	33.23	30.7	25.1	38.54	18.9	25.3	39.18	12.5	25.4	12.64	17.2
26.6	74.91	9.9	26.9	33.68	30.5	26.1	38.15	18.5	26.3	38.77	12.7	26.4	11.53	17.4
27.6	75.79	10.2	27.9	34.16	30.2	27.1	37.78	18.2	27.3	38.35	12.9	27.4	10.34	17.7
28.6	76.61	10.5	28.9	34.64	30.0	28.1	37.46	17.8	28.3	37.92	13.0	28.4	9.08	18.0
29.6	77.38	10.8	29.9	35.13	29.8	29.1	37.18	17.4	29.3	37.48	13.1	29.4	7.79	18.2
30.6	78.06	11.1	30.8	35.61	29.7	30.1	36.95	17.1	30.3	37.06	13.2	30.4	6.49	18.4
31.6	78.69	11.5	31.8	36.07	29.5	31.1	36.76	16.7	31.3	36.64	13.3	31.4	5.22	18.6
32.6	79.27	11.8	32.8	36.53	29.4	32.1	36.59	16.4	32.3	36.24	13.3	32.4	4.00	18.8

SEPTEMBER, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Sept.	1 26	+88 48	Sept.	6 56	+87 11	Sept.	12 13	+88 13	Sept.	18 2	+86 37	Sept.	19 15	+89 0
	s	″		s	″		s	″		s	″		s	″
1.6	19.27	11.8	1.8	36.53	29.4	1.1	36.59	16.4	1.3	36.24	13.3	1.4	64.00	18.8
2.6	19.85	12.1	2.8	36.96	29.3	2.1	36.43	16.0	2.3	35.86	13.4	2.4	62.82	18.9
3.6	20.45	12.3	3.8	37.37	29.1	3.1	36.27	15.7	3.3	35.49	13.5	3.4	61.70	19.1
4.6	21.08	12.6	4.8	37.78	29.0	4.1	36.08	15.4	4.3	35.13	13.6	4.4	60.62	19.3
5.6	21.74	12.9	5.8	38.19	28.8	5.1	35.85	15.0	5.3	34.77	13.7	5.3	59.55	19.5
6.6	22.46	13.2	6.8	38.60	28.6	6.0	35.59	14.7	6.3	34.39	13.8	6.3	58.46	19.7
7.6	23.20	13.5	7.8	39.04	28.4	7.0	35.32	14.4	7.3	34.01	13.9	7.3	57.33	19.9
8.6	23.96	13.8	8.8	39.51	28.2	8.0	35.06	14.0	8.3	33.60	14.0	8.3	56.15	20.1
9.6	24.69	14.1	9.8	40.01	28.0	9.0	34.81	13.6	9.3	33.18	14.1	9.3	54.90	20.3
10.6	25.37	14.4	10.8	40.52	27.9	10.0	34.58	13.2	10.3	32.74	14.2	10.3	53.55	20.5
11.6	26.01	14.8	11.8	41.04	27.7	11.0	34.39	12.8	11.3	32.28	14.2	11.3	52.15	20.7
12.6	26.57	15.1	12.8	41.56	27.6	12.0	34.26	12.4	12.3	31.83	14.3	12.3	50.73	20.9
13.6	27.07	15.5	13.8	42.08	27.5	13.0	34.18	12.0	13.3	31.38	14.3	13.3	49.32	21.0
14.6	27.51	15.9	14.8	42.59	27.4	14.0	34.13	11.6	14.3	30.96	14.3	14.3	47.92	21.2
15.6	27.93	16.2	15.8	43.07	27.3	15.0	34.09	11.2	15.3	30.55	14.3	15.3	46,57	21.3
16.6	28.34	16.5	16.8	43.54	27.2	16.0	34.06	10.8	16.3	30.15	14.3	16.3	45.29	21.4
17.6	28.78	16.9	17.8	44.00	27.1	17.0	34.02	10.5	17.3	29.75	14.3	17.3	44.04	21.5
18.6	29.26	17.2	18.8	44.45	27.0	18.0	33.95	10.1	18.3	29.37	14.3	18.3	42.81	21.7
19.6	29.78	17.5	19.8	44.91	26.9	19.0	33.85	9.8	19.3	28.98	14.4	19.3	41.58	21.8
20.6	30.34	17.8	20.8	45.38	26.8	20.0	33.72	9.5	20.3	28.58	14.4	20.3	40.31	21.9
21.6	30.94	18.1	21.8	45.89	26.6	21.0	33.58	9.1	21.3	28.15	14.4	21.3	39.00	22.1
22.6	31.52	18.5	22.8	46.42	26.5	22.0	33.46	8.7	22.3	27.71	14.5	22.3	37.62	22.3
23.6	32.08	18.9	23.8	46 96	26.4	23.0	33.35	8.3	23.2	27.25	14.5	23.3	36.17	22.4
24.6	32.59	19.3	24.8	47.52	26.3	24.0	33.28	7.9	24.2	26.78	14.5	24.3	34.65	22.6
25.5	33.03	19.7	25.8	48.11	26.2	25.0	33.24	7.5	25.2	26.31	14.5	25.3	33.09	22.7
26.5	33.40	20.1	26.8	48.68	26.2	25.9	33.26	7.1	26.2	25.83	14.5	26.3	31.52	22.8
27.5	33.71	20.5	27.8	49.23	26.1	26.9	33.32	6.7	27.2	25.37	14.4	27.3	29.98	22.9
28.5	33.98	20.9	28.8	49.76	26.1	27.9	33.41	6.3	28.2	24.93	14.4	28.3	28.48	22.9
29.5	34.21	21.2	29.8	50.28	26.1	28.9	33.52	6.0	29.2	24.51	14.3	29.3	27.04	23.0
30.5	34.44	21.6	30.8	50.76	26.1	29.9	33.63	5.6	30.2	24.11	14.3	30.3	25.66	23.0
31.5	34.69	21.9	31.8	51.24	26.0	30.9	33.73	5.2	31.2	23.73	14.2	31.3	24.34	23.1
32.5	34.98	22.3	32.8	51.70	26.0	31.9	33.79	4.9	32.2	23.34	14.2	32.3	23.03	23.2

(CONSTANTS OF STRUVE AND PETERS.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Oct.	1 26	+88 48	Oct.	6 56	+87 11	Oct.	12 13	+88 12	Oct.	18 2	+86 37	Oct.	19 14	+89 0
	s	″		s	″		s	″		s	″		s	″
1.5	34.69	21.9	1.8	51.24	26.0	1.9	33.79	64.9	1.2	23.73	14.2	1.3	84.34	23.1
2.5	34.98	22.3	2.8	51.70	26.0	2.9	33.82	64.5	2.2	23.34	14.2	2.3	83.03	23.2
3.5	35.31	22.6	3.8	52.17	25.9	3.9	33.85	64.2	3.2	22.96	14.1	3.3	81.74	23.2
4.5	35.68	22.9	4.8	52.67	25.8	4.9	33.85	63.8	4.2	22.55	14.1	4.3	80.42	23.3
5.5	36.05	23.3	5.8	53.18	25.8	5.9	33.87	63.4	5.2	22.15	14.1	5.3	79.05	23.4
6.5	36.42	23.7	6.8	53.72	25.7	6.9	33.91	63.0	6.2	21.72	14.1	6.3	77.62	23.5
7.5	36.75	24.0	7.7	54.27	25.7	7.9	33.99	62.6	7.2	21.28	14.0	7.3	76.12	23.6
8.5	37.03	24.4	8.7	54.85	25.6	8.9	34.12	62.2	8.2	20.82	13.9	8.3	74.57	23.7
9.5	37.23	24.9	9.7	55.41	25.6	9.9	34.29	61.7	9.2	20.37	13.8	9.3	72.98	23.7
10.5	37.35	25.3	10.7	55.97	25.6	10.9	34.51	61.3	10.2	19.92	13.7	10.3	71.40	23.8
11.5	37.42	25.7	11.7	56.51	25.7	11.9	34.75	60.9	11.2	19.50	13.6	11.2	69.85	23.8
12.5	37.44	26.1	12.7	57.04	25.7	12.9	35.00	60.6	12.2	19.09	13.5	12.2	68.34	23.8
13.5	37.46	26.4	13.7	57.54	25.8	13.9	35.25	60.2	13.2	18.70	13.4	13.2	66.88	23.7
14.5	37.48	26.8	14.7	58.03	25.8	14.9	35.48	59.9	14.2	18.32	13.2	14.2	65.48	23.7
15.5	37.53	27.1	15.7	58.51	25.8	15.9	35.68	59.5	15.2	17.95	13.1	15.2	64.12	23.7
16.5	37.63	27.5	16.7	58.99	25.8	16.9	35.85	59.2	16.2	17.58	13.0	16.2	62.78	23.7
17.5	37.76	27.8	17.7	59.48	25.8	17.9	36.00	58.8	17.2	17.19	12.9	17.2	61.43	23.7
18.5	37.91	28.2	18.7	59.99	25.8	18.9	36.14	58.5	18.2	16.81	12.8	18.2	60.04	23.8
19.5	38.09	28.6	19.7	60.52	25.8	19.9	36.31	58.1	19.2	16.40	12.7	19.2	58.60	23.8
20.5	38.26	29.0	20.7	61.08	25.8	20.9	36.51	57.7	20.2	15.97	12.6	20.2	57.10	23.8
21.5	38.36	29.4	21.7	61.64	25.9	21.9	36.76	57.4	21.2	15.54	12.5	21.2	55.54	23.8
22.5	38.41	29.8	22.7	62.21	25.9	22.9	37.05	57.0	22.2	15.09	12.4	22.2	53.94	23.8
23.5	38.39	30.2	23.7	62.79	26.0	23.9	37.38	56.6	23.2	14.65	12.2	23.2	52.32	23.8
24.5	38.28	30.7	24.7	63.36	26.1	24.9	37.76	56.2	24.2	14.23	12.0	24.2	50.72	23.7
25.5	38.13	31.1	25.7	63.89	26.2	25.9	38.14	55.8	25.2	13.81	11.8	25.2	49.17	23.7
26.5	37.92	31.4	26.7	64.40	26.3	26.9	38.53	55.5	26.2	13.42	11.6	26.2	47.67	23.6
27.5	37.71	31.8	27.7	64.89	26.4	27.9	38.91	55.2	27.2	13.06	11.4	27.2	46.25	23.5
28.5	37.52	32.2	28.7	65.36	26.5	28.9	39.27	54.9	28.2	12.72	11.2	28.2	44.90	23.4
29.5	37.36	32.5	29.7	65.81	26.6	29.9	39.60	54.5	29.1	12.38	11.1	29.2	43.60	23.3
30.5	37.23	32.8	30.7	66.27	26.6	30.9	39.91	54.2	30.1	12.05	10.9	30.2	42.32	23.3
31.5	37.15	33.2	31.7	66.74	26.7	31.9	40.20	53.9	31.1	11.72	10.7	31.2	41.03	23.2
32.4	37.08	33.5	32.7	67.22	26.8	32.9	40.50	53.6	32.1	11.37	10.6	32.2	39.70	23.2

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Nov.	1 26	+88 48	Nov.	6 57	+87 11	Nov.	12 13	+88 12	Nov.	18 2	+86 37	Nov.	19 14	+89 0
	s	″		s	″		s	″		s	″		s	″
1.4	37.08	33.5	1.7	7.22	26.8	1.9	40.50	53.6	1.1	11.37	10.6	1.2	39.70	23.2
2.4	37.01	33.9	2.7	7.72	26.8	2.9	40.81	53.2	2.1	11.01	10.4	2.2	38.33	23.1
3.4	36.91	34.3	3.7	8.24	26.9	3.9	41.16	52.8	3.1	10.63	10.3	3.2	36.90	23.1
4.4	36.76	34.7	4.7	8.77	27.0	4.9	41.55	52.4	4.1	10.24	10.1	4.2	35.43	23.0
5.4	36.55	35.1	5.7	9.30	27.1	5.9	41.98	52.1	5.1	9.86	9.9	5.2	33.92	22.9
6.4	36.25	35.4	6.7	9.84	27.3	6.9	42.46	51.7	6.1	9.49	9.7	6.2	32.41	22.8
7.4	35.90	35.8	7.7	10.35	27.4	7.9	42.97	51.4	7.1	9.12	9.4	7.2	30.94	22.7
8.4	35.49	36.2	8.7	10.84	27.6	8.9	43.49	51.1	8.1	8.78	9.2	8.2	29.50	22.6
9.4	35.05	36.6	9.7	11.30	27.8	9.9	44.02	50.8	9.1	8.46	8.9	9.2	28.13	22.4
10.4	34.62	36.9	10.7	11.74	28.0	10.9	44.54	50.5	10.1	8.16	8.6	10.2	26.84	22.3
11.4	34.21	37.2	11.6	12.17	28.1	11.9	45.02	50.2	11.1	7.86	8.4	11.2	25.60	22.1
12.4	33.83	37.6	12.6	12.59	28.3	12.9	45.47	50.0	12.1	7.58	8.1	12.2	24.39	22.0
13.4	33.50	37.9	13.6	13.01	28.4	13.9	45.90	49.7	13.1	7.31	7.9	13.2	23.21	21.8
14.4	33.19	38.2	14.6	13.45	28.5	14.9	46.32	49.4	14.1	7.02	7.7	14.2	22.00	21.7
15.4	32.91	38.5	15.6	13.90	28.7	15.9	46.74	49.1	15.1	6.71	7.5	15.2	20.75	21.6
16.4	32.62	38.9	16.6	14.37	28.8	16.9	47.18	48.8	16.1	6.39	7.3	16.2	19.44	21.5
17.4	32.29	39.2	17.6	14.86	29.0	17.9	47.67	48.5	17.1	6.05	7.0	17.1	18.08	21.4
18.4	31.92	39.6	18.6	15.36	29.1	18.9	48.20	48.2	18.1	5.72	6.8	18.1	16.68	21.2
19.4	31.47	40.0	19.6	15.85	29.3	19.8	48.77	47.9	19.1	5 39	6.5	19.1	15.27	21.0
20.4	30.94	40.4	20.6	16.33	29.5	20.8	49.38	47.6	20.1	5.07	6.2	20.1	13.87	20.9
21.4	30.35	40.7	21.6	16.79	29.7	21.8	50.02	47.4	21.1	4.76	5.9	21.1	12.52	20.7
22.4	29.72	41.1	22.6	17.22	30.0	22.8	50.67	47.1	22.1	4.48	5.6	22.1	11.23	20.5
23.4	29.05	41.4	23.6	17.63	30.2	23.8	51.31	46.9	23.1	4.23	5.3	23.1	10.02	20.2
24.4	28.40	41.7	24.6	18.01	30.5	24.8	51.93	46.7	24.1	4.00	5.0	24.1	8.89	20.0
25.4	27.77	42.0	25.6	18.36	30.7	25.8	52.52	46.5	25.1	3.79	4.7	25.1	7.83	19.8
26.4	27.18	42.2	26.6	18.70	30.9	26.8	53.08	46.2	26.1	3.58	4.4	26.1	6.82	19.6
27.4	26.62	42.5	27.6	19.05	31.1	27.8	53.62	46.0	27.1	3.38	4.1	27.1	5.81	19.4
28.4	26.09	42.8	28.6	19.41	31.3	28.8	54.14	45.8	28.1	3.16	3.8	28.1	4.80	19.2
29.4	25.58	43.1	29.6	19.77	31.5	29.8	54.68	45.5	29.1	2.94	3.6	29.1	3.70	19.0
30.4	25.06	43.4	30.6	20.16	31.7	30.8	55.24	45.3	30.1	2.70	3.3	30.1	2.67	18.8
31.4	24.49	43.7	31.6	20.57	31.9	31.8	55.84	45.0	31.1	2.46	3.0	31.1	1.54	18.6

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Dec.	1 25	+88 48	Dec.	6 57	+87 11	Dec.	12 13	+88 12	Dec.	18 1	+86 36	Dec.	19 13	+89 0
	s	″		s	″		s	″		s	″		s	″
1.4	84.49	43.7	1.6	20.57	31.9	1.8	55.84	45.0	1.1	62.46	63.0	1.1	61.54	18.6
2.4	83.86	44.0	2.6	20.97	32.1	2.8	56.48	44.8	2.1	62.22	62.7	2.1	60.38	18.4
3.4	83.17	44.3	3.6	21.37	32.4	3.8	57.17	44.5	3.1	61.98	62.4	3.1	59.21	18.2
4.4	82.40	44.6	4.6	21.75	32.7	4.8	57.89	44.3	4.0	61.76	62.1	4.1	58.07	18.0
5.4	81.58	44.9	5.6	22.11	33.0	5.8	58.62	44.1	5.0	61.55	61.7	5.1	56.98	17.7
6.4	80.71	45.2	6.6	22.44	33.2	6.8	59.36	43.9	6.0	61.37	61.3	6.1	55.95	17.4
7.3	79.85	45.4	7.6	22.74	33.5	7.8	60.09	43.7	7.0	61.21	61.0	7.1	55.00	17.1
8.3	79.00	45.7	8.6	23.02	33.8	8.8	60.79	43.6	8.0	61.08	60.6	8.1	54.14	16.8
9.3	78.18	45.9	9.6	23.30	34.1	9.8	61.45	43.5	9.0	60.96	60.3	9.1	53.32	16.5
10.3	77.42	46.1	10.6	23.57	34.3	10.8	62.09	43.3	10.0	60.84	60.0	10.1	52.54	16.3
11.3	76.70	46.3	11.6	23.83	34.6	11.8	62.70	43.2	11.0	60.71	59.7	11.1	51.75	16.0
12.3	76.00	46.6	12.6	24.12	34.8	12.8	63.31	43.0	12.0	60.57	59.4	12.1	50.95	15.8
13.3	75.31	46.8	13.6	24.42	35.1	13.8	63.93	42.9	13.0	60.42	59.1	13.1	50.11	15.5
14.3	74.61	47.0	14.6	24.74	35.3	14.8	64.57	42.7	14.0	60.26	58.8	14.1	49.22	15.3
15.3	73.85	47.3	15.6	25.06	35.6	15.8	65.25	42.5	15.0	60.09	58.5	15.1	48.29	15.1
16.3	73.05	47.6	16.6	25.39	35.9	16.8	65.97	42.4	16.0	59.94	58.1	16.1	47.34	14.8
17.3	72.17	47.8	17.6	25.71	36.2	17.8	66.74	42.2	17.0	59.77	57.8	17.1	46.40	14.5
18.3	71.21	48.1	18.6	26.00	36.5	18.8	67.54	42.1	18.0	59.62	57.4	18.1	45.50	14.2
19.3	70.21	48.3	19.5	26.26	36.8	19.8	68.34	42.0	19.0	59.51	57.0	19.1	44.67	13.9
20.3	69.19	48.5	20.5	26.49	37.2	20.8	69.13	41.9	20.0	59.42	56.7	20.1	43.92	13.6
21.3	68.16	48.7	21.5	26.69	37.5	21.8	69.91	41.8	21.0	59.35	56.3	21.1	43.27	13.2
22.3	67.17	48.8	22.5	26.87	37.8	22.8	70.66	41.8	22.0	59.31	55.9	22.1	42.70	12.9
23.3	66.22	49.0	23.5	27.02	38.1	23.8	71.36	41.7	22.9	59.28	55.6	23.0	42.19	12.6
24.3	65.30	49.1	24.5	27.17	38.4	24.8	72.04	41.7	23.9	59.26	55.2	24.0	41.71	12.3
25.3	64.41	49.3	25.5	27.32	38.7	25.7	72.68	41.6	24.9	59.24	54.9	25.0	41.24	12.0
26.3	63.57	49.4	26.5	27.49	39.0	26.7	73.33	41.5	25.9	59.20	54.6	26.0	40.75	11.7
27.3	62.72	49.6	27.5	27.67	39.3	27.7	73.99	41.4	26.9	59.16	54.3	27.0	40.24	11.4
28.3	61.84	49.7	28.5	27.87	39.6	28.7	74.68	41.3	27.9	59.10	54.0	28.0	39.68	11.1
29.3	60.92	49.9	29.5	28.06	39.9	29.7	75.40	41.2	28.9	59.06	53.7	29.0	39.09	10.8
30.3	59.94	50.1	30.5	28.25	40.2	30.7	76.17	41.2	29.9	59.01	53.3	30.0	38.50	10.5
31.3	58.89	50.3	31.5	28.43	40.5	31.7	76.97	41.1	30.9	58.96	52.9	31.0	37.93	10.2
32.3	57.79	50.4	32.5	28.58	40.9	32.7	77.79	41.1	31.9	58.95	52.6	32.0	37.40	9.9

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	33 Piscium.				α Andromedæ.				β Cassiopeiæ.				22 Andromedæ.				γ Pegasi. (*Algenib.*)			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	0 0		− 6 13		0 3		+28 34		0 4		+58 37		0 5		+45 32		0 8		+14 39	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.2	30.58	.11	67.9	0.6	31.04	.15	21.6	1.0	9.30	.33	65.2	0.9	25.58	.22	66.3	0.9	23.00	.13	39.1	0.9
10.2	30.47	.11	68.5	0.5	30.89	.14	20.6	1.2	8.97	.31	64.3	1.3	25.36	.20	65.4	1.3	22.87	.12	38.2	1.0
20.2	30.36	.09	69.0	0.4	30.75	.13	19.4	1.4	8.66	.29	63.0	1.7	25.16	.19	64.1	1.7	22.75	.11	37.2	1.1
30.2	30.27	.08	69.4	0.2	30.62	.11	18.0	1.6	8.37	.26	61.3	2.2	24.97	.17	62.4	2.0	22.64	.09	36.1	1.1
Feb. 9.1	30.19	.06	69.6	0.0	30.51	.09	16.4	1.7	8.11	.20	59.1	2.5	24.80	.13	60.4	2.2	22.55	.07	35.0	1.0
19.1	30.13	.03	69.6	0.1	30.42	.05	14.7	1.7	7.91	.14	56.6	2.6	24.67	.09	58.2	2.3	22.48	.05	34.0	1.0
Mar. 1.1	30.10	.00	69.5	0.4	30.37	.02	13.0	1.6	7.77	.07	54.0	2.8	24.58	.05	55.9	2.3	22.43	.02	33.0	0.9
11.0	30.10	.04	69.1	0.6	30.35	.02	11.4	1.4	7.70	.00	51.2	2.7	24.53	.01	53.6	2.3	22.41	.03	32.1	0.6
21.0	30.14	.07	68.5	0.8	30.37	.07	10.0	1.3	7.70	.07	48.5	2.7	24.54	.07	51.3	2.1	22.44	.06	31.5	0.4
31.0	30.21	.10	67.7	1.1	30.44	.11	8.7	1.0	7.77	.16	45.8	2.3	24.61	.13	49.2	1.8	22.50	.10	31.1	0.2
Apr. 10.0	30.31	.15	66.6	1.3	30.55	.16	7.7	0.6	7.93	.24	43.5	2.1	24.74	.19	47.4	1.5	22.60	.15	30.9	0.1
19.9	30.46	.19	65.3	1.5	30.71	.21	7.1	0.2	8.17	.30	41.4	1.6	24.93	.24	45.9	1.1	22.75	.18	31.0	0.4
29.9	30.65	.22	63.8	1.7	30.92	.24	6.9	0.1	8.47	.37	39.8	1.1	25.17	.28	44.8	0.6	22.93	.22	31.4	0.8
May 9.9	30.87	.25	62.1	1.9	31.16	.28	7.0	0.5	8.84	.42	38.7	0.7	25.45	.33	44.2	0.2	23.15	.26	32.2	1.1
19.9	31.12	.28	60.2	2.0	31.44	.31	7.5	0.9	9.26	.46	38.0	0.1	25.78	.36	44.0	0.3	23.41	.28	33.3	1.3
29.8	31.40	.30	58.2	2.0	31.75	.32	8.4	1.3	9.72	.48	37.9	0.4	26.14	.39	44.3	0.8	23.69	.30	34.6	1.7
June 8.8	31.70	.30	56.2	2.0	32.07	.34	9.7	1.6	10.20	.50	38.3	0.9	26.53	.39	45.1	1.2	23.99	.31	36.3	1.8
18.8	32.00	.31	54.2	2.0	32.41	.33	11.3	1.8	10.70	.49	39.2	1.4	26.92	.40	46.3	1.6	24.30	.32	38.1	1.9
28.7	32.31	.31	52.2	1.9	32.74	.33	13.1	2.1	11.19	.48	40.6	1.9	27.32	.38	47.9	2.1	24.62	.31	40.0	2.1
July 8.7	32.62	.29	50.3	1.8	33.07	.31	15.2	2.3	11.67	.45	42.5	2.3	27.70	.36	50.0	2.3	24.93	.29	42.1	2.1
18.7	32.91	.27	48.5	1.5	33.38	.29	17.5	2.4	12.12	.42	44.8	2.6	28.06	.33	52.3	2.5	25.22	.28	44.2	2.2
28.7	33.18	.24	47.0	1.3	33.67	.25	19.9	2.5	12.54	.37	47.4	2.9	28.39	.30	54.8	2.8	25.50	.25	46.4	2.0
Aug. 7.6	33.42	.21	45.7	1.1	33.92	.22	22.4	2.5	12.91	.31	50.3	3.1	28.69	.26	57.6	2.9	25.75	.21	48.4	2.0
17.6	33.63	.17	44.6	0.8	34.14	.19	24.9	2.4	13.22	.26	53.4	3.3	28.95	.21	60.5	3.0	25.96	.18	50.4	1.8
27.6	33.80	.14	43.8	0.5	34.33	.14	27.3	2.3	13.48	.19	56.7	3.3	29.16	.16	63.5	3.0	26.14	.14	52.2	1.7
Sept. 6.6	33.94	.10	43.3	0.3	34.47	.10	29.6	2.2	13.67	.13	60.0	3.4	29.32	.11	66.5	3.0	26.28	.10	53.9	1.4
16.5	34.04	.06	43.0	0.0	34.57	.06	31.8	2.1	13.80	.07	63.4	3.3	29.43	.06	69.5	2.8	26.38	.07	55.3	1.3
26.5	34.10	.02	43.0	0.3	34.63	.02	33.9	1.8	13.87	.00	66.7	3.2	29.49	.02	72.3	2.7	26.45	.03	56.6	1.0
Oct. 6.5	34.12	.01	43.3	0.4	34.65	.01	35.7	1.6	13.87	.06	69.9	3.0	29.51	.03	75.0	2.5	26.48	.01	57.6	0.8
16.5	34.11	.04	43.7	0.6	34.64	.05	37.3	1.3	13.81	.11	72.9	2.8	29.48	.07	77.5	2.2	26.47	.03	58.4	0.6
26.4	34.07	.06	44.3	0.7	34.59	.07	38.6	1.1	13.70	.16	75.7	2.4	29.41	.10	79.7	1.9	26.44	.05	59.0	0.4
Nov. 5.4	34.01	.08	45.0	0.7	34.52	.09	39.7	0.7	13.54	.21	78.1	2.1	29.31	.13	81.6	1.5	26.39	.08	59.4	0.1
15.4	33.93	.10	45.7	0.8	34.43	.12	40.4	0.5	13.33	.24	80.2	1.6	29.18	.16	83.1	1.2	26.31	.09	59.5	0.1
25.3	33.83	.11	46.5	0.8	34.31	.13	40.9	0.2	13.09	.28	81.8	1.1	29.02	.19	84.3	0.7	26.22	.11	59.4	0.2
Dec. 5.3	33.72	.11	47.3	0.8	34.18	.14	41.1	0.2	12.81	.31	82.9	0.7	28.83	.20	85.0	0.3	26.11	.12	59.2	0.5
15.3	33.61	.11	48.1	0.8	34.04	.14	40.9	0.5	12.50	.32	83.6	0.1	28.63	.21	85.3	0.2	25.99	.12	58.7	0.6
25.3	33.50	.12	48.9	0.7	33.90	.15	40.4	0.8	12.18	.33	83.7	0.5	28.42	.22	85.1	0.6	25.87	.12	58.1	0.8
35.2	33.38		49.6		33.75		39.6		11.85		83.2		28.20		84.5		25.75		57.3	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	σ Andromedæ.				ι Ceti.				44 Piscium.				β Hydri.				12 Ceti.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*	
	h m 0 13		° ′ +36 15		h m 0 14		° ′ — 9 20		h m 0 20		° ′ + 1 24		h m 0 20		° ′ —77 46		h m 0 25		° ′ — 4 28	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.2	24.45	.18	57.1	0.9	37.50	.12	51.1	0.6	34.32	.12	63.3	0.8	46.02	0.89	86.1	1.0	13.79	.12	43.6	0.7
10.2	24.27	.16	56.2	1.2	37.38	.11	51.7	0.4	34.20	.11	62.5	0.7	45.13	0.83	85.1	1.6	13.67	.11	44.3	0.6
20.2	24.11	.16	55.0	1.5	37.27	.10	52.1	0.3	34.09	.10	61.8	0.6	44.30	0.75	83.5	2.1	13.56	.11	44.9	0.4
30.2	23.95	.14	53.5	1.7	37.17	.09	52.4	0.1	33.99	.10	61.2	0.6	43.55	0.64	81.4	2.6	13.45	.10	45.3	0.3
Feb. 9.1	23.81	.11	51.8	1.9	37.08	.07	52.5	0.1	33.89	.07	60.6	0.4	42.91	0.53	78.8	3.0	13.35	.07	45.6	0.1
19.1	23.70	.08	49.9	1.9	37.01	.04	52.4	0.3	33.82	.05	60.2	0.2	42.38	0.39	75.8	3.3	13.28	.06	45.7	0.0
Mar. 1.1	23.62	.04	48.0	1.9	36.97	.02	52.1	0.6	33.77	.03	60.0	0.1	41.99	0.25	72.5	3.6	13.22	.02	45.7	0.3
11.1	23.58	.01	46.1	1.9	36.95	.02	51.5	0.8	33.74	.01	59.9	0.1	41.74	0.10	68.9	3.7	13.20	.00	45.4	0.5
21.0	23.59	.06	44.2	1.6	36.97	.05	50.7	1.0	33.75	.05	60.0	0.4	41.64	0.06	65.2	3.8	13.20	.05	44.9	0.7
31.0	23.65	.11	42.6	1.4	37.02	.09	49.7	1.3	33.80	.09	60.4	0.6	41.70	0.22	61.4	3.8	13.25	.08	44.2	1.0
Apr. 10.0	23.76	.16	41.2	1.1	37.11	.14	48.4	1.4	33.89	.13	61.0	0.9	41.92	0.37	57.6	3.7	13.33	.13	43.2	1.2
19.9	23.92	.20	40.1	0.7	37.25	.17	47.0	1.7	34.02	.17	61.9	1.1	42.29	0.52	53.9	3.6	13.46	.16	42.0	1.4
29.9	24.12	.25	39.4	0.3	37.42	.21	45.3	1.9	34.19	.21	63.0	1.4	42.81	0.67	50.3	3.3	13.62	.20	40.6	1.7
May 9.9	24.37	.30	39.1	0.2	37.63	.25	43.4	2.0	34.40	.24	64.4	1.5	43.48	0.79	47.0	2.9	13.82	.24	38.9	1.8
19.9	24.67	.32	39.3	0.6	37.88	.27	41.4	2.0	34.64	.27	65.9	1.8	44.27	0.90	44.1	2.6	14.06	.26	37.1	1.9
29.8	24.99	.34	39.9	0.9	38.15	.29	39.4	2.1	34.91	.29	67.7	1.9	45.17	0.99	41.5	2.2	14.32	.29	35.2	2.0
June 8.8	25.33	.35	40.8	1.4	38.44	.31	37.3	2.1	35.20	.30	69.6	2.0	46.16	1.06	39.3	1.6	14.61	.30	33.2	2.1
18.8	25.68	.36	42.2	1.7	38.75	.31	35.2	2.0	35.50	.31	71.6	2.0	47.22	1.11	37.7	1.1	14.91	.31	31.1	2.0
28.8	26.04	.35	43.9	2.0	39.06	.31	33.2	1.9	35.81	.30	73.6	2.0	48.33	1.11	36.6	0.6	15.22	.31	29.1	1.9
July 8.7	26.39	.33	45.9	2.3	39.37	.30	31.3	1.7	36.11	.30	75.6	1.9	49.44	1.10	36.0	0.0	15.53	.29	27.2	1.9
18.7	26.72	.31	48.2	2.4	39.67	.28	29.6	1.5	36.41	.27	77.5	1.8	50.54	1.05	36.0	0.6	15.82	.28	25.3	1.6
28.7	27.03	.28	50.6	2.6	39.95	.25	28.1	1.2	36.68	.26	79.3	1.6	51.59	0.98	36.6	1.2	16.10	.26	23.7	1.4
Aug. 7.6	27.31	.24	53.2	2.7	40.20	.22	26.9	1.0	36.94	.22	80.9	1.4	52.57	0.86	37.8	1.7	16.36	.23	22.3	1.2
17.6	27.55	.20	55.9	2.7	40.42	.19	25.9	0.6	37.16	.19	82.3	1.2	53.43	0.73	39.5	2.1	16.59	.19	21.1	0.9
27.6	27.75	.16	58.6	2.6	40.61	.15	25.3	0.4	37.35	.15	83.5	1.0	54.16	0.57	41.6	2.5	16.78	.16	20.2	0.7
Sept. 6.6	27.91	.12	61.2	2.6	40.76	.11	24.9	0.1	37.50	.11	84.5	0.7	54.73	0.40	44.1	2.8	16.94	.12	19.5	0.4
16.5	28.03	.07	63.8	2.4	40.87	.08	24.8	0.2	37.61	.08	85.2	0.5	55.13	0.21	46.9	3.0	17.06	.09	19.1	0.1
26.5	28.10	.03	66.2	2.2	40.95	.03	25.0	0.4	37.69	.05	85.7	0.2	55.34	0.02	49.9	3.1	17.15	.04	19.0	0.2
Oct. 6.5	28.13	.01	68.4	2.0	40.98	.01	25.4	0.6	37.74	.01	85.9	0.0	55.36	0.16	53.0	3.1	17.19	.02	19.2	0.3
16.5	28.12	.04	70.4	1.8	40.99	.03	26.0	0.8	37.75	.02	85.9	0.2	55.20	0.34	56.1	2.9	17.21	.02	19.5	0.5
26.4	28.08	.07	72.2	1.5	40.96	.05	26.8	0.9	37.73	.05	85.7	0.3	54.86	0.50	59.0	2.7	17.19	.04	20.0	0.7
Nov. 5.4	28.01	.10	73.7	1.2	40.91	.07	27.7	0.9	37.68	.06	85.4	0.4	54.36	0.65	61.7	2.2	17.15	.06	20.7	0.7
15.4	27.91	.12	74.9	0.8	40.84	.09	28.6	1.0	37.62	.08	85.0	0.6	53.71	0.76	63.9	1.8	17.09	.08	21.4	0.8
25.3	27.79	.14	75.7	0.5	40.75	.11	29.6	0.9	37.54	.10	84.4	0.7	52.95	0.84	65.7	1.2	17.01	.10	22.2	0.8
Dec. 5.3	27.65	.16	76.2	0.1	40.64	.11	30.5	0.9	37.44	.11	83.7	0.7	52.11	0.89	66.9	0.6	16.91	.10	23.0	0.8
15.3	27.49	.17	76.3	0.3	40.53	.11	31.4	0.7	37.33	.11	83.0	0.7	51.22	0.91	67.5	0.0	16.81	.11	23.8	0.8
25.3	27.32	.17	76.0	0.6	40.42	.12	32.1	0.7	37.22	.12	82.3	0.7	50.31	0.90	67.5	0.6	16.70	.12	24.6	0.7
35.2	27.15		75.4		40.30		32.8		37.10		81.6		49.41		66.9		16.58		25.3	

FIXED STARS, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	π Andromedæ.				α Cassiopeiæ.				β Ceti.				21 Cassiopeiæ.				ο Cassiopeiæ.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 0 31		° ′ +33 11		h m 0 35		° ′ +56 1		h m 0 38		° ′ −18 29		h m 0 39		° ′ +74 28		h m 0 39		° ′ +47 45	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.3	51.12	.16	72.0	0.7	10.13	.30	29.9	0.5	51.54	.13	81.7	0.5	26.78	.73	41.7	0.0	28.92	.23	81.0	0.5
10.2	50.96	.16	71.3	1.0	9.83	.30	29.4	1.0	51.41	.13	82.2	0.3	26.05	.73	41.7	0.7	28.69	.23	80.5	1.0
20.2	50.80	.16	70.3	1.3	9.53	.29	28.4	1.4	51.28	.12	82.5	0.0	25.32	.70	41.0	1.2	28.46	.23	79.5	1.3
30.2	50.64	.14	69.0	1.6	9.24	.26	27.0	1.8	51.16	.11	82.5	0.3	24.62	.65	39.8	1.8	28.23	.20	78.2	1.7
Feb. 9.1	50.50	.12	67.4	1.6	8.98	.22	25.2	2.2	51.05	.09	82.2	0.5	23.97	.55	38.0	2.2	28.03	.18	76.5	2.0
19.1	50.38	.09	65.8	1.8	8.76	.17	23.0	2.4	50.96	.07	81.7	0.8	23.42	.45	35.8	2.6	27.85	.14	74.5	2.2
Mar. 1.1	50.29	.06	64.0	1.7	8.59	.12	20.6	2.5	50.89	.04	80.9	1.0	22.97	.32	33.2	2.9	27.71	.09	72.3	2.3
11.1	50.23	.01	62.3	1.7	8.47	.05	18.1	2.6	50.85	.01	79.9	1.3	22.65	.17	30.3	3.0	27.62	.04	70.0	2.3
21.0	50.22	.03	60.6	1.4	8.42	.02	15.5	2.5	50.84	.03	78.6	1.6	22.48	.02	27.3	3.0	27.58	.02	67.7	2.1
31.0	50.25	.09	59.2	1.3	8.44	.10	13.0	2.3	50.87	.07	77.0	1.8	22.46	.13	24.3	2.9	27.60	.09	65.6	2.0
Apr. 10.0	50.34	.14	57.9	1.0	8.54	.18	10.7	2.1	50.94	.11	75.2	2.0	22.59	.29	21.4	2.7	27.69	.15	63.6	1.7
20.0	50.48	.18	56.9	0.6	8.72	.24	8.6	1.7	51.05	.15	73.2	2.1	22.88	.43	18.7	2.4	27.84	.21	61.9	1.4
29.9	50.66	.23	56.3	0.2	8.96	.31	6.9	1.3	51.20	.20	71.1	2.2	23.31	.56	16.3	2.0	28.05	.26	60.5	1.0
May 9.9	50.89	.27	56.1	0.1	9.27	.37	5.6	0.9	51.40	.23	68.9	2.4	23.87	.67	14.3	1.5	28.31	.31	59.5	0.5
19.9	51.16	.30	56.2	0.6	9.64	.41	4.7	0.3	51.63	.26	66.5	2.4	24.54	.76	12.8	1.0	28.62	.35	59.0	0.1
29.8	51.46	.33	56.8	0.9	10.05	.44	4.4	0.1	51.89	.29	64.1	2.3	25.30	.82	11.8	0.5	28.97	.39	58.9	0.4
June 8.8	51.79	.34	57.7	1.3	10.49	.47	4.5	0.7	52.18	.31	61.8	2.2	26.12	.86	11.3	0.1	29.36	.40	59.3	0.8
18.8	52.13	.35	59.0	1.6	10.96	.47	5.2	1.1	52.49	.31	59.6	2.1	26.98	.88	11.4	0.6	29.76	.41	60.1	1.3
28.8	52.48	.35	60.6	1.9	11.43	.47	6.3	1.6	52.80	.32	57.5	1.8	27.86	.87	12.0	1.2	30.17	.40	61.4	1.6
July 8.7	52.83	.33	62.5	2.2	11.90	.45	7.9	1.9	53.12	.32	55.7	1.6	28.73	.84	13.2	1.6	30.57	.40	63.0	2.0
18.7	53.16	.31	64.7	2.3	12.35	.42	9.8	2.4	53.44	.29	54.1	1.4	29.57	.79	14.8	2.1	30.97	.37	65.0	2.3
28.7	53.47	.29	67.0	2.4	12.77	.39	12.2	2.6	53.73	.28	52.7	1.0	30.36	.73	16.9	2.6	31.34	.34	67.3	2.6
Aug. 7.7	53.76	.25	69.4	2.5	13.16	.34	14.8	2.9	54.01	.25	51.7	0.6	31.09	.64	19.5	2.8	31.68	.30	69.9	2.7
17.6	54.01	.22	71.9	2.5	13.50	.29	17.7	3.0	54.26	.21	51.1	0.3	31.73	.55	22.3	3.2	31.98	.26	72.6	2.9
27.6	54.23	.18	74.4	2.5	13.79	.24	20.7	3.2	54.47	.18	50.8	0.1	32.28	.44	25.5	3.4	32.24	.22	75.5	2.9
Sept. 6.6	54.41	.13	76.9	2.4	14.03	.18	23.9	3.2	54.65	.14	50.9	0.4	32.72	.34	28.9	3.5	32.46	.16	78.4	3.0
16.5	54.54	.10	79.3	2.2	14.21	.12	27.1	3.2	54.79	.10	51.3	0.7	33.06	.21	32.4	3.7	32.62	.12	81.4	2.9
26.5	54.64	.06	81.5	2.1	14.33	.07	30.3	3.1	54.89	.06	52.0	1.0	33.27	.10	36.1	3.6	32.74	.07	84.3	2.8
Oct. 6.5	54.70	.02	83.6	1.9	14.40	.01	33.4	3.0	54.95	.03	53.0	1.1	33.37	.01	39.7	3.6	32.81	.03	87.1	2.6
16.5	54.72	.02	85.5	1.7	14.41	.04	36.4	2.8	54.98	.01	54.1	1.3	33.36	.14	43.3	3.4	32.84	.02	89.7	2.4
26.4	54.70	.05	87.2	1.4	14.37	.10	39.2	2.5	54.97	.04	55.4	1.4	33.22	.25	46.7	3.3	32.82	.06	92.1	2.2
Nov. 5.4	54.65	.07	88.6	1.1	14.27	.14	41.7	2.2	54.93	.06	56.8	1.4	32.97	.36	50.0	2.9	32.76	.10	94.3	1.8
15.4	54.58	.10	89.7	0.8	14.13	.18	43.9	1.8	54.87	.08	58.2	1.3	32.61	.47	52.9	2.5	32.66	.14	96.1	1.5
25.4	54.48	.12	90.5	0.5	13.95	.22	45.7	1.4	54.79	.10	59.5	1.2	32.14	.55	55.4	2.0	32.52	.16	97.6	1.1
Dec. 5.3	54.36	.14	91.0	0.1	13.73	.25	47.1	0.9	54.69	.12	60.7	1.0	31.59	.63	57.4	1.6	32.36	.19	98.7	0.7
15.3	54.22	.15	91.1	0.2	13.48	.28	48.0	0.4	54.57	.12	61.7	0.9	30.96	.69	59.0	0.9	32.17	.21	99.4	0.3
25.3	54.07	.16	90.9	0.5	13.20	.29	48.4	0.1	54.45	.13	62.6	0.7	30.27	.72	59.9	0.4	31.96	.23	99.7	0.2
35.2	53.91		90.4		12.91		48.3		54.32		63.3		29.55		60.3		31.73		99.5	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Piscium.				γ Cassiopeiæ.				μ Andromedæ.				43 Cephei (H.).				ε Piscium.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 0 43		° ′ + 7 4		h m 0 50		° ′ +60 12		h m 0 51		° ′ +37 59		h m 0 55		° ′ +85 44		h m 0 58		° ′ + 7 22	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.3	47.75	.12	20.7	0.7	62.04	.35	39.6	0.2	31.79	.18	28.3	0.5	53.12	2.90	85.8	0.5	3.38	.12	58.4	0.7
10.2	47.63	.13	20.0	0.8	61.69	.35	39.4	0.7	31.61	.18	27.8	0.9	50.22	2.91	86.3	0.2	3.26	.13	57.7	0.7
20.2	47.50	.12	19.2	0.8	61.34	.34	38.7	1.2	31.43	.18	26.9	1.2	47.31	2.82	86.1	0.8	3.13	.13	57.0	0.8
30.2	47.38	.11	18.4	0.7	61.00	.32	37.5	1.7	31.25	.17	25.7	1.4	44.49	2.62	85.3	1.5	3.00	.12	56.2	0.7
Feb. 9.2	47.27	.09	17.7	0.6	60.68	.28	35.8	2.1	31.08	.15	24.3	1.7	41.87	2.32	83.8	2.0	2.88	.10	55.5	0.6
19.1	47.18	.07	17.1	0.5	60.40	.23	33.7	2.3	30.93	.12	22.6	1.8	39.55	1.93	81.8	2.4	2.78	.08	54.9	0.5
Mar. 1.1	47.11	.05	16.6	0.4	60.17	.16	31.4	2.6	30.81	.08	20.8	1.9	37.62	1.47	79.4	2.8	2.70	.06	54.4	0.4
11.1	47.06	.01	16.2	0.2	60.01	.09	28.8	2.6	30.73	.04	18.9	1.8	36.15	0.95	76.6	3.0	2.64	.03	54.0	0.2
21.0	47.05	.02	16.0	0.0	59.92	.01	26.2	2.6	30.69	.01	17.1	1.7	35.20	0.41	73.6	3.1	2.61	.01	53.8	0.0
31.0	47.07	.07	16.0	0.3	59.91	.07	23.6	2.5	30.70	.06	15.4	1.5	34.79	0.16	70.5	3.1	2.62	.05	53.8	0.3
Apr. 10.0	47.14	.11	16.3	0.5	59.98	.16	21.1	2.3	30.76	.12	13.9	1.3	34.95	0.71	67.4	3.0	2.67	.10	54.1	0.5
20.0	47.25	.15	16.8	0.8	60.14	.24	18.8	2.0	30.88	.18	12.6	0.9	35.66	1.21	64.4	2.7	2.77	.13	54.6	0.7
29.9	47.40	.19	17.6	1.0	60.38	.32	16.8	1.6	31.06	.22	11.7	0.6	36.87	1.68	61.7	2.4	2.90	.18	55.3	1.0
May 9.9	47.59	.23	18.6	1.3	60.70	.38	15.2	1.1	31.28	.27	11.1	0.2	38.55	2.09	59.3	2.0	3.08	.22	56.3	1.3
19.9	47.82	.26	19.9	1.6	61.08	.44	14.1	0.7	31.55	.30	10.9	0.2	40.64	2.41	57.3	1.5	3.30	.25	57.6	1.5
29.9	48.08	.28	21.5	1.7	61.52	.48	13.4	0.1	31.85	.34	11.1	0.6	43.05	2.66	55.8	1.0	3.55	.28	59.1	1.6
June 8.8	48.36	.30	23.2	1.8	62.00	.51	13.3	0.3	32.19	.35	11.7	1.0	45.71	2.83	54.8	0.4	3.83	.29	60.7	1.8
18.8	48.66	.31	25.0	2.0	62.51	.52	13.6	0.8	32.54	.36	12.7	1.4	48.54	2.92	54.4	0.1	4.12	.31	62.5	1.9
28.8	48.97	.31	27.0	1.9	63.03	.52	14.4	1.3	32.90	.37	14.1	1.7	51.46	2.94	54.5	0.7	4.43	.31	64.4	2.0
July 8.7	49.28	.30	28.9	2.0	63.55	.50	15.7	1.8	33.27	.35	15.8	2.0	54.40	2.87	55.2	1.2	4.74	.30	66.4	2.0
18.7	49.58	.28	30.9	1.9	64.05	.48	17.5	2.1	33.62	.34	17.8	2.2	57.27	2.73	56.4	1.7	5.04	.29	68.4	1.8
28.7	49.86	.27	32.8	1.8	64.53	.45	19.6	2.5	33.96	.31	20.0	2.3	60.00	2.55	58.1	2.2	5.33	.27	70.2	1.8
Aug. 7.7	50.13	.24	34.6	1.7	64.98	.40	22.1	2.8	34.27	.28	22.3	2.5	62.55	2.30	60.3	2.6	5.60	.25	72.0	1.7
17.6	50.37	.20	36.3	1.4	65.38	.34	24.9	3.0	34.55	.25	24.8	2.6	64.85	2.00	62.9	3.0	5.85	.22	73.7	1.5
27.6	50.57	.18	37.7	1.3	65.72	.29	27.9	3.1	34.80	.21	27.4	2.6	66.85	1.67	65.9	3.3	6.07	.18	75.2	1.2
Sept. 6.6	50.75	.14	39.0	1.0	66.01	.23	31.0	3.3	35.01	.16	30.0	2.5	68.52	1.30	69.2	3.5	6.25	.15	76.4	1.1
16.5	50.89	.10	40.0	0.8	66.24	.17	34.3	3.3	35.17	.13	32.5	2.5	69.82	0.90	72.7	3.7	6.40	.12	77.5	0.8
26.5	50.99	.06	40.8	0.6	66.41	.10	37.6	3.2	35.30	.08	35.0	2.3	70.72	0.48	76.4	3.8	6.52	.08	78.3	0.6
Oct. 6.5	51.05	.04	41.4	0.3	66.51	.04	40.8	3.2	35.38	.05	37.3	2.1	71.20	0.04	80.2	3.8	6.60	.05	78.9	0.3
16.5	51.09	.00	41.7	0.2	66.55	.02	44.0	3.0	35.43	.00	39.4	2.0	71.24	0.41	84.0	3.7	6.65	.02	79.2	0.2
26.5	51.09	.02	41.9	0.0	66.53	.08	47.0	2.8	35.43	.03	41.4	1.7	70.83	0.86	87.7	3.6	6.67	.01	79.4	0.0
Nov. 5.4	51.07	.04	41.9	0.2	66.45	.14	49.8	2.4	35.40	.06	43.1	1.4	69.97	1.29	91.3	3.3	6.66	.03	79.4	0.2
15.4	51.03	.07	41.7	0.4	66.31	.19	52.2	2.1	35.34	.09	44.5	1.2	68.68	1.72	94.6	3.0	6.63	.06	79.2	0.3
25.4	50.96	.09	41.3	0.4	66.12	.24	54.3	1.7	35.25	.11	45.7	0.8	66.96	2.08	97.6	2.5	6.57	.08	78.9	0.4
Dec. 5.3	50.87	.09	40.9	0.6	65.88	.28	56.0	1.2	35.14	.14	46.5	0.4	64.88	2.42	100.1	2.1	6.49	.09	78.5	0.6
15.3	50.78	.11	40.3	0.6	65.60	.31	57.2	0.7	35.00	.16	46.9	0.1	62.46	2.67	102.2	1.5	6.40	.10	77.9	0.6
25.3	50.67	.12	39.7	0.7	65.29	.33	57.9	0.2	34.84	.17	47.0	0.3	59.79	2.85	103.7	0.9	6.30	.12	77.3	0.7
35.3	50.55		39.0		64.96		58.1		34.67		46.7		56.94		104.6		6.18		76.6	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Andromedæ.				κ Tucanæ.				*f* Piscium.				θ¹ Ceti.				38 Cassiopeiæ.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m 1 4 s		° ′ +35 7 ″		h m 1 12 s		° ′ −69 22 ″		h m 1 12 s		° ′ + 3 7 ″		h m 1 19 s		° ′ − 8 39 ″		h m 1 24 s		° ′ +69 46 ″	
Jan. 0.3	27.81	.17	24.8	0.4	33.76	.54	57.4	0.1	56.59	.12	4.0	0.7	19.05	.13	76.5	0.8	14.58	.52	63.7	0.4
10.2	27.64	.18	24.4	0.8	33.22	.54	57.3	0.7	56.47	.12	3.3	0.7	18.92	.13	77.3	0.5	14.06	.55	64.1	0.1
20.2	27.46	.17	23.6	1.1	32.68	.51	56.6	1.2	56.35	.13	2.6	0.6	18.79	.13	77.8	0.4	13.51	.54	64.0	0.7
30.2	27.29	.17	22.5	1.3	32.17	.48	55.4	1.8	56.22	.13	2.0	0.6	18.66	.13	78.2	0.2	12.97	.53	63.3	1.2
Feb. 9.2	27.12	.15	21.2	1.5	31.69	.42	53.6	2.3	56.09	.11	1.4	0.4	18.53	.12	78.4	0.0	12.44	.48	62.1	1.7
19.1	26.97	.12	19.7	1.6	31.27	.36	51.3	2.7	55.98	.10	1.0	0.3	18.41	.10	78.4	0.2	11.96	.42	60.4	2.2
Mar. 1.1	26.85	.09	18.1	1.7	30.91	.29	48.6	3.1	55.88	.07	0.7	0.1	18.31	.08	78.2	0.5	11.54	.34	58.2	2.5
11.1	26.76	.05	16.4	1.7	30.62	.21	45.5	3.4	55.81	.04	0.6	0.0	18.23	.04	77.7	0.7	11.20	.24	55.7	2.7
21.0	26.71	.01	14.7	1.5	30.41	.12	42.1	3.5	55.77	.00	0.6	0.3	18.19	.02	77.0	0.9	10.96	.12	53.0	2.8
31.0	26.70	.05	13.2	1.4	30.29	.02	38.6	3.7	55.77	.04	0.9	0.5	18.17	.03	76.1	1.2	10.84	.00	50.2	2.8
Apr. 10.0	26.75	.10	11.8	1.2	30.27	.08	34.9	3.8	55.81	.08	1.4	0.7	18.20	.07	74.9	1.4	10.84	.12	47.4	2.6
20.0	26.85	.16	10.6	0.8	30.35	.19	31.1	3.7	55.89	.12	2.1	1.0	18.27	.11	73.5	1.7	10.96	.24	44.8	2.5
29.9	27.01	.20	9.8	0.5	30.54	.28	27.4	3.6	56.01	.16	3.1	1.2	18.38	.16	71.8	1.8	11.20	.36	42.3	2.2
May 9.9	27.21	.25	9.3	0.1	30.82	.37	23.8	3.4	56.17	.20	4.3	1.4	18.54	.20	70.0	1.9	11.56	.45	40.1	1.8
19.9	27.46	.29	9.2	0.2	31.19	.46	20.4	3.1	56.37	.24	5.7	1.6	18.74	.23	68.1	2.0	12.01	.55	38.3	1.3
29.9	27.75	.32	9.4	0.6	31.65	.53	17.3	2.8	56.61	.27	7.3	1.8	18.97	.26	66.0	2.2	12.56	.61	37.0	0.9
June 8.8	28.07	.34	10.0	1.0	32.18	.60	14.5	2.4	56.88	.29	9.1	1.9	19.23	.28	63.8	2.2	13.17	.67	36.1	0.3
18.8	28.41	.35	11.0	1.4	32.78	.65	12.1	2.0	57.17	.30	11.0	1.9	19.51	.30	61.6	2.1	13.84	.70	35.8	0.2
28.8	28.76	.36	12.4	1.6	33.43	.67	10.1	1.4	57.47	.31	12.9	2.0	19.81	.31	59.5	2.0	14.54	.71	36.0	0.6
July 8.8	29.12	.35	14.0	1.8	34.10	.69	8.7	0.8	57.78	.30	14.9	1.9	20.12	.30	57.5	1.8	15.25	.71	36.6	1.2
18.7	29.47	.33	15.8	2.1	34.79	.68	7.9	0.3	58.08	.29	16.8	1.8	20.42	.30	55.7	1.7	15.96	.69	37.8	1.6
28.7	29.80	.32	17.9	2.3	35.47	.66	7.6	0.3	58.37	.28	18.6	1.7	20.72	.28	54.0	1.4	16.65	.66	39.4	2.1
Aug. 7.7	30.12	.28	20.2	2.4	36.13	.60	7.9	0.9	58.65	.26	20.3	1.5	21.00	.26	52.6	1.1	17.31	.61	41.5	2.4
17.6	30.40	.25	22.6	2.4	36.73	.54	8.8	1.4	58.91	.22	21.8	1.3	21.26	.24	51.5	0.8	17.92	.55	43.9	2.8
27.6	30.65	.22	25.0	2.4	37.27	.47	10.2	2.0	59.13	.20	23.1	1.1	21.50	.20	50.7	0.5	18.47	.47	46.7	3.0
Sept. 6.6	30.87	.18	27.4	2.3	37.74	.37	12.2	2.3	59.33	.16	24.2	0.8	21.70	.17	50.2	0.2	18.94	.40	49.7	3.2
16.6	31.05	.13	29.7	2.3	38.11	.27	14.5	2.7	59.49	.13	25.0	0.5	21.87	.14	50.0	0.1	19.34	.32	52.9	3.4
26.5	31.18	.10	32.0	2.1	38.38	.16	17.2	3.0	59.62	.10	25.5	0.4	22.01	.10	50.1	0.4	19.66	.23	56.3	3.4
Oct. 6.5	31.28	.06	34.1	2.0	38.54	.05	20.2	3.1	59.72	.07	25.9	0.1	22.11	.07	50.5	0.6	19.89	.15	59.7	3.4
16.5	31.34	.03	36.1	1.8	38.59	.06	23.3	3.0	59.79	.03	26.0	0.1	22.18	.04	51.1	0.8	20.04	.05	63.1	3.4
26.5	31.37	.01	37.9	1.6	38.53	.17	26.3	3.0	59.82	.00	25.9	0.3	22.22	.00	51.9	1.0	20.09	.04	66.5	3.3
Nov. 5.4	31.36	.04	39.5	1.4	38.36	.26	29.3	2.8	59.82	.02	25.6	0.4	22.22	.02	52.9	1.0	20.05	.14	69.8	3.0
15.4	31.32	.07	40.9	1.0	38.10	.34	32.1	2.4	59.80	.04	25.2	0.6	22.20	.04	53.9	1.1	19.91	.22	72.8	2.7
25.4	31.25	.10	41.9	0.8	37.76	.42	34.5	1.9	59.76	.07	24.6	0.6	22.16	.07	55.0	1.1	19.69	.31	75.5	2.3
Dec. 5.3	31.15	.12	42.7	0.4	37.34	.47	36.4	1.5	59.69	.09	24.0	0.6	22.09	.09	56.1	1.0	19.38	.38	77.8	1.9
15.3	31.03	.15	43.1	0.1	36.87	.51	37.9	0.9	59.60	.10	23.4	0.7	22.00	.10	57.1	1.0	19.00	.44	79.7	1.4
25.3	30.88	.16	43.2	0.3	36.36	.53	38.8	0.3	59.50	.11	22.7	0.7	21.90	.12	58.1	0.8	18.56	.50	81.1	0.8
35.3	30.72		42.9		35.83		39.1		59.39		22.0		21.78		58.9		18.06		81.9	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Piscium.				υ Andromedæ.				π Piscium.				α Eridani. (*Achernar.*)				ν Piscium.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	1 26		+14 51		1 31		+40 55		1 32		+11 39		1 34		−57 42		1 36		+ 5 0	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.3	26.87	.13	38.3	0.6	16.69	.18	73.0	0.1	6.61	.12	35.0	0.6	12.27	.32	75.6	0.4	32.07	.12	37.2	0.7
10.3	26.74	.13	37.7	0.7	16.51	.20	72.9	0.5	6.49	.14	34.4	0.7	11.95	.33	76.0	0.1	31.95	.13	36.5	0.6
20.2	26.61	.14	37.0	0.8	16.31	.21	72.4	0.9	6.35	.14	33.7	0.7	11.62	.33	75.9	0.7	31.82	.13	35.9	0.6
30.2	26.47	.14	36.2	0.8	16.10	.20	71.5	1.1	6.21	.13	33.0	0.7	11.29	.32	75.2	1.2	31.69	.14	35.3	0.6
Feb. 9.2	26.33	.13	35.4	0.8	15.90	.18	70.4	1.4	6.08	.13	32.3	0.7	10.97	.29	74.0	1.7	31.55	.12	34.7	0.5
19.2	26.20	.11	34.6	0.8	15.72	.17	69.0	1.7	5.95	.11	31.6	0.7	10.68	.25	72.3	2.2	31.43	.12	34.2	0.4
Mar. 1.1	26.09	.09	33.8	0.7	15.55	.13	67.3	1.8	5.84	.09	30.9	0.5	10.43	.21	70.1	2.6	31.31	.09	33.8	0.2
11.1	26.00	.05	33.1	0.6	15.42	.09	65.5	1.8	5.75	.06	30.4	0.4	10.22	.16	67.5	2.9	31.22	.06	33.6	0.0
21.1	25.95	.02	32.5	0.4	15.33	.04	63.7	1.8	5.69	.03	30.0	0.3	10.06	.11	64.6	3.2	31.16	.03	33.6	0.1
31.1	25.93	.02	32.1	0.2	15.29	.01	61.9	1.6	5.66	.02	29.7	0.0	9.95	.03	61.4	3.4	31.13	.02	33.7	0.4
Apr. 10.0	25.95	.07	31.9	0.0	15.30	.07	60.3	1.5	5.68	.06	29.7	0.2	9.92	.03	58.0	3.5	31.15	.05	34.1	0.6
20.0	26.02	.11	31.9	0.3	15.37	.14	58.8	1.3	5.74	.11	29.9	0.5	9.95	.10	54.5	3.6	31.20	.10	34.7	0.8
30.0	26.13	.16	32.2	0.5	15.51	.18	57.5	0.9	5.85	.15	30.4	0.7	10.05	.17	50.9	3.6	31.30	.15	35.5	1.1
May 9.9	26.29	.21	32.7	0.8	15.69	.24	56.6	0.6	6.00	.20	31.1	0.9	10.22	.24	47.3	3.4	31.45	.18	36.6	1.3
19.9	26.50	.23	33.5	1.1	15.93	.29	56.0	0.2	6.20	.23	32.0	1.2	10.46	.30	43.9	3.3	31.63	.23	37.9	1.5
29.9	26.73	.27	34.6	1.3	16.22	.32	55.8	0.2	6.43	.26	33.2	1.4	10.76	.36	40.6	3.1	31.86	.25	39.4	1.7
June 8.9	27.00	.29	35.9	1.5	16.54	.35	56.0	0.5	6.69	.28	34.6	1.6	11.12	.41	37.5	2.7	32.11	.28	41.1	1.8
18.9	27.29	.31	37.4	1.7	16.89	.37	56.5	1.0	6.97	.30	36.2	1.8	11.53	.44	34.8	2.3	32.39	.29	42.9	1.8
28.9	27.60	.31	39.1	1.8	17.26	.37	57.5	1.2	7.27	.31	38.0	1.8	11.97	.47	32.5	1.8	32.68	.31	44.7	1.9
July 8.8	27.91	.32	40.9	1.9	17.63	.38	58.7	1.6	7.58	.31	39.8	1.9	12.44	.48	30.7	1.4	32.99	.30	46.6	1.9
18.7	28.23	.30	42.8	1.9	18.01	.37	60.3	1.9	7.89	.31	41.7	1.8	12.92	.48	29.3	0.8	33.29	.30	48.5	1.8
28.7	28.53	.29	44.7	1.9	18.38	.35	62.2	2.0	8.20	.28	43.5	1.9	13.40	.46	28.5	0.2	33.59	.29	50.3	1.7
Aug. 7.7	28.82	.27	46.6	1.8	18.73	.32	64.2	2.3	8.48	.27	45.4	1.7	13.86	.44	28.3	0.3	33.88	.27	52.0	1.6
17.7	29.09	.24	48.4	1.7	19.05	.29	66.5	2.4	8.75	.25	47.1	1.6	14.30	.40	28.6	0.9	34.15	.24	53.6	1.4
27.6	29.33	.21	50.1	1.5	19.34	.26	68.9	2.4	9.00	.21	48.7	1.4	14.70	.35	29.5	1.5	34.39	.21	55.0	1.1
Sept. 6.6	29.54	.18	51.6	1.4	19.60	.22	71.3	2.4	9.21	.18	50.1	1.2	15.05	.29	31.0	1.9	34.60	.19	56.1	0.9
16.6	29.72	.15	53.0	1.2	19.82	.18	73.7	2.5	9.39	.15	51.3	1.0	15.34	.23	32.9	2.3	34.79	.15	57.0	0.6
26.6	29.87	.11	54.2	1.0	20.00	.14	76.2	2.3	9.54	.12	52.3	0.8	15.57	.16	35.2	2.6	34.94	.12	57.6	0.4
Oct. 6.5	29.98	.08	55.2	0.8	20.14	.10	78.5	2.3	9.66	.08	53.1	0.6	15.73	.09	37.8	2.8	35.06	.09	58.0	0.2
16.5	30.06	.05	56.0	0.6	20.24	.06	80.8	2.1	9.74	.06	53.7	0.4	15.82	.02	40.6	3.0	35.15	.06	58.2	0.0
26.5	30.11	.02	56.6	0.4	20.30	.02	82.9	1.9	9.80	.03	54.1	0.2	15.84	.05	43.6	2.9	35.21	.03	58.2	0.2
Nov. 5.4	30.13	.01	57.0	0.3	20.32	.01	84.8	1.7	9.83	.00	54.3	0.1	15.79	.11	46.5	2.8	35.24	.00	58.0	0.3
15.4	30.12	.03	57.3	0.0	20.31	.05	86.5	1.5	9.83	.03	54.4	0.1	15.68	.16	49.3	2.6	35.24	.03	57.7	0.5
25.4	30.09	.06	57.3	0.1	20.26	.09	88.0	1.2	9.80	.06	54.3	0.2	15.52	.22	51.9	2.2	35.21	.05	57.2	0.5
Dec. 5.4	30.03	.08	57.2	0.2	20.17	.12	89.2	0.8	9.74	.07	54.1	0.4	15.30	.26	54.1	1.8	35.16	.07	56.7	0.6
15.3	29.95	.10	57.0	0.4	20.05	.15	90.0	0.4	9.67	.10	53.7	0.5	15.04	.29	55.9	1.3	35.09	.09	56.1	0.7
25.3	29.85	.11	56.6	0.5	19.90	.17	90.4	0.2	9.57	.11	53.2	0.5	14.75	.31	57.2	0.8	35.00	.11	55.4	0.6
35.3	29.74		56.1		19.73		90.6		9.46		52.7		14.44		58.0		34.89		54.8	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ο Piscium.				ζ Ceti.				β Arietis.				50 Cassiopeiæ.				γ Andromedæ.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	1 40		+ 8 40		1 46		−10 47		1 49		+20 20		1 55		+71 57		1 58		+41 52	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.3	25.52	.12	60.0	0.6	48.96	.12	69.2	0.8	26.64	.13	53.8	0.5	25.33	.56	70.8	0.9	7.81	.18	48.6	0.2
10.3	25.40	.13	59.4	0.7	48.84	.14	70.0	0.6	26.51	.14	53.3	0.5	24.77	.61	71.7	0.4	7.63	.20	48.8	0.3
20.3	25.27	.13	58.7	0.7	48.70	.14	70.6	0.4	26.37	.15	52.8	0.7	24.16	.63	72.1	0.2	7.43	.21	48.5	0.6
30.3	25.14	.14	58.0	0.6	48.56	.14	71.0	0.2	26.22	.15	52.1	0.8	23.53	.62	71.9	0.9	7.22	.21	47.9	0.9
Feb. 9.2	25.00	.13	57.4	0.6	48.42	.14	71.2	0.0	26.07	.15	51.3	0.9	22.91	.59	71.0	1.3	7.01	.21	47.0	1.2
19.2	24.87	.12	56.8	0.5	48.28	.12	71.2	0.3	25.92	.13	50.4	0.9	22.32	.54	69.7	1.8	6.80	.19	45.8	1.4
Mar. 1.1	24.75	.09	56.3	0.4	48.16	.10	70.9	0.5	25.79	.11	49.5	0.9	21.78	.45	67.9	2.2	6.61	.16	44.4	1.6
11.1	24.66	.07	55.9	0.2	48.06	.08	70.4	0.8	25.68	.08	48.6	0.8	21.33	.35	65.7	2.6	6.45	.12	42.8	1.7
21.1	24.59	.03	55.7	0.1	47.98	.04	69.6	1.0	25.60	.05	47.8	0.7	20.98	.23	63.1	2.7	6.33	.07	41.1	1.8
31.1	24.56	.01	55.6	0.2	47.94	.00	68.6	1.3	25.55	.00	47.1	0.6	20.75	.10	60.4	2.8	6.26	.02	39.3	1.7
Apr. 10.0	24.57	.05	55.8	0.3	47.94	.04	67.3	1.5	25.55	.05	46.5	0.3	20.65	.04	57.6	2.7	6.24	.04	37.6	1.5
20.0	24.62	.10	56.1	0.6	47.98	.09	65.8	1.8	25.60	.10	46.2	0.1	20.69	.17	54.9	2.7	6.28	.10	36.1	1.3
30.0	24.72	.14	56.7	0.9	48.07	.13	64.0	1.9	25.70	.14	46.1	0.1	20.86	.31	52.2	2.4	6.38	.16	34.8	1.1
May 9.9	24.86	.19	57.6	1.1	48.20	.17	62.1	2.1	25.84	.19	46.2	0.5	21.17	.42	49.8	2.0	6.54	.21	33.7	0.8
19.9	25.05	.22	58.7	1.3	48.37	.21	60.0	2.2	26.03	.22	46.7	0.7	21.59	.54	47.8	1.7	6.75	.27	32.9	0.4
29.9	25.27	.25	60.0	1.5	48.58	.25	57.8	2.2	26.25	.27	47.4	0.9	22.13	.62	46.1	1.3	7.02	.30	32.5	0.1
June 8.9	25.52	.28	61.5	1.7	48.83	.27	55.6	2.2	26.52	.28	48.3	1.3	22.75	.70	44.8	0.8	7.32	.34	32.4	0.3
18.8	25.80	.30	63.2	1.8	49.10	.29	53.4	2.2	26.80	.31	49.6	1.4	23.45	.76	44.0	0.3	7.66	.37	32.7	0.7
28.8	26.10	.30	65.0	1.8	49.39	.30	51.2	2.1	27.11	.32	51.0	1.6	24.21	.78	43.7	0.2	8.03	.38	33.4	1.0
July 8.8	26.40	.31	66.8	1.9	49.69	.30	49.1	1.9	27.43	.32	52.6	1.7	24.99	.80	43.9	0.7	8.41	.38	34.4	1.3
18.8	26.71	.30	68.7	1.8	49.99	.31	47.2	1.7	27.75	.32	54.3	1.8	25.79	.79	44.6	1.2	8.79	.38	35.7	1.6
28.7	27.01	.29	70.5	1.8	50.30	.29	45.5	1.4	28.07	.30	56.1	1.9	26.58	.76	45.8	1.7	9.17	.37	37.3	1.9
Aug. 7.7	27.30	.27	72.3	1.6	50.59	.27	44.1	1.1	28.37	.28	58.0	1.8	27.34	.73	47.5	2.0	9.54	.34	39.2	2.0
17.7	27.57	.25	73.9	1.5	50.86	.25	43.0	0.8	28.65	.27	59.8	1.8	28.07	.67	49.5	2.4	9.88	.32	41.2	2.2
27.7	27.82	.22	75.4	1.3	51.11	.23	42.2	0.5	28.92	.23	61.6	1.7	28.74	.61	51.9	2.7	10.20	.29	43.4	2.2
Sept. 6.6	28.04	.19	76.7	1.0	51.34	.19	41.7	0.1	29.15	.21	63.3	1.5	29.35	.54	54.6	3.0	10.49	.26	45.6	2.3
16.6	28.23	.16	77.7	0.9	51.53	.17	41.6	0.2	29.36	.17	64.8	1.5	29.89	.45	57.6	3.2	10.75	.21	47.9	2.4
26.6	28.39	.12	78.6	0.6	51.70	.12	41.8	0.5	29.53	.14	66.3	1.2	30.34	.35	60.8	3.4	10.96	.18	50 3	2.3
Oct. 6.5	28.51	.09	79.2	0.4	51.82	.10	42.3	0.7	29.67	.11	67.5	1.1	30.69	.26	64.2	3.4	11.14	.14	52.6	2.3
16.5	28.60	.07	79.6	0.2	51.92	.06	43.0	1.0	29.78	.07	68.6	0.9	30.95	.16	67.6	3.4	11.28	.10	54.9	2.1
26.5	28.67	.03	79.8	0.1	51.98	.04	44.0	1.1	29.85	.05	69.5	0.8	31.11	.06	71.0	3.3	11.38	.06	57.0	2.0
Nov. 5.5	28.70	.01	79.9	0.2	52.02	.00	45.1	1.2	29.90	.02	70.3	0.5	31.17	.06	74.3	3.2	11.44	.02	59.0	1.8
15.4	28.71	.02	79.7	0.2	52.02	.02	46.3	1.3	29.92	.02	70.8	0.4	31.11	.16	77.5	3.0	11.46	.02	60.8	1.6
25.4	28.69	.05	79.5	0.4	52.00	.05	47.6	1.2	29.90	.04	71.2	0.2	30.95	.26	80.5	2.7	11.44	.05	62.4	1.3
Dec. 5.4	28.64	.07	79.1	0.5	51.95	.08	48.8	1.2	29.86	.07	71.4	0.0	30.69	.36	83.2	2.2	11.39	.10	63.7	1.1
15.3	28.57	.09	78.6	0.5	51.87	.09	50.0	1.1	29.79	.09	71.4	0.1	30.33	.45	85.4	1.8	11.29	.13	64.8	0.7
25.3	28.48	.11	78.1	0.6	51.78	.11	51.1	0.8	29.70	.11	71.3	0.3	29.88	.52	87.2	1.3	11.16	.16	65.5	0.4
35.3	28.37		77.5		51.67		51.9		29.59		71.0		29.36		88.5		11.00		65.9	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Arietis.				β Trianguli.				ξ¹ Ceti.				γ Trianguli.				67 Ceti.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination South.	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	2 1		+23 0		2 3		+34 32		2 7		+ 8 24		2 11		+33 24		2 12		− 6 51	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.3	52.36	.13	64.3	0.3	57.02	.15	36.6	0.0	60.93	.11	15.2	0.6	43.59	.14	47.3	0.0	17.54	.11	29.7	0.9
10.3	52.23	.14	64.0	0.5	56.87	.17	36.6	0.3	60.82	.13	14.6	0.6	43.45	.16	47.3	0.3	17.43	.13	30.6	0.7
20.3	52.09	.16	63.5	0.6	56.70	.19	36.3	0.6	60.69	.14	14.0	0.6	43.29	.19	47.0	0.5	17.30	.15	31.3	0.6
30.3	51.93	.16	62.9	0.8	56.51	.19	35.7	0.8	60.55	.15	13.4	0.6	43.10	.18	46.5	0.8	17.15	.14	31.9	0.3
Feb. 9.2	51.77	.16	62.1	0.9	56.32	.18	34.9	1.1	60.40	.14	12.8	0.5	42.92	.19	45.7	0.9	17.01	.15	32.2	0.1
19.2	51.61	.14	61.2	0.9	56.14	.17	33.8	1.2	60.26	.14	12.3	0.5	42.73	.17	44.8	1.2	16.86	.14	32.3	0.1
Mar. 1.2	51.47	.12	60.3	1.0	55.97	.14	32.6	1.3	60.12	.12	11.8	0.3	42.56	.15	43.6	1.3	16.72	.12	32.2	0.3
11.1	51.35	.10	59.3	0.9	55.83	.11	31.3	1.4	60.00	.09	11.5	0.2	42.41	.11	42.3	1.3	16.60	.09	31.9	0.5
21.1	51.25	.05	58.4	0.8	55.72	.07	29.9	1.4	59.91	.05	11.3	0.1	42.30	.07	41.0	1.3	16.51	.06	31.4	0.8
31.1	51.20	.01	57.6	0.7	55.65	.02	28.5	1.3	59.86	.02	11.2	0.2	42.23	.03	39.7	1.2	16.45	.03	30.6	1.0
Apr. 10.0	51.19	.03	56.9	0.5	55.63	.03	27.2	1.2	59.84	.03	11.4	0.3	42.20	.02	38.5	1.1	16.42	.02	29.6	1.2
20.0	51.22	.08	56.4	0.3	55.66	.09	26.0	0.9	59.87	.07	11.7	0.6	42.22	.08	37.4	0.9	16.44	.06	28.4	1.5
30.0	51.30	.14	56.1	0.0	55.75	.14	25.1	0.7	59.94	.12	12.3	0.8	42.30	.13	36.5	0.7	16.50	.11	26.9	1.7
May 10.0	51.44	.18	56.1	0.2	55.89	.20	24.4	0.4	60.06	.16	13.1	1.1	42.43	.19	35.8	0.4	16.61	.15	25.2	1.9
19.9	51.62	.22	56.3	0.5	56.09	.24	24.0	0.1	60.22	.20	14.2	1.3	42.62	.23	35.4	0.0	16.76	.19	23.3	2.0
29.9	51.84	.26	56.8	0.8	56.33	.28	23.9	0.2	60.42	.23	15.5	1.4	42.85	.27	35.4	0.2	16.95	.22	21.3	2.0
June 8.9	52.10	.28	57.6	1.1	56.61	.31	24.1	0.5	60.65	.27	16.9	1.6	43.12	.30	35.6	0.5	17.17	.26	19.3	2.2
18.9	52.38	.31	58.7	1.3	56.92	.33	24.6	0.9	60.92	.28	18.5	1.7	43.42	.33	36.1	0.9	17.43	.28	17.1	2.1
28.8	52.69	.32	60.0	1.4	57.25	.35	25.5	1.2	61.20	.30	20.2	1.8	43.75	.34	37.0	1.1	17.71	.29	15.0	2.0
July 8.8	53.01	.33	61.4	1.6	57.60	.36	26.7	1.4	61.50	.31	22.0	1.8	44.09	.35	38.1	1.4	18.00	.30	13.0	2.0
18.8	53.34	.32	63.0	1.8	57.96	.35	28.1	1.6	61.81	.30	23.8	1.7	44.44	.35	39.5	1.6	18.30	.30	11.0	1.7
28.7	53.66	.31	64.8	1.8	58.31	.34	29.7	1.8	62.11	.30	25.5	1.7	44.79	.34	41.1	1.7	18.60	.30	9.3	1.5
Aug. 7.7	53.97	.30	66.6	1.8	58.65	.32	31.5	1.9	62.41	.28	27.2	1.6	45.13	.33	42.8	1.8	18.90	.28	7.8	1.3
17.7	54.27	.27	68.4	1.8	58.97	.30	33.4	2.0	62.69	.26	28.8	1.4	45.46	.30	44.6	2.0	19.18	.26	6.5	1.0
27.7	54.54	.25	70.2	1.7	59.27	.27	35.4	2.1	62.95	.24	30.2	1.2	45.76	.27	46.6	2.0	19.44	.24	5.5	0.7
Sept. 6.6	54.79	.22	71.9	1.6	59.54	.24	37.5	2.1	63.19	.21	31.4	1.0	46.03	.25	48.6	1.9	19.68	.21	4.8	0.3
16.6	55.01	.18	73.5	1.5	59.78	.21	39.6	2.0	63.40	.18	32.4	0.8	46.28	.21	50.5	1.9	19.89	.19	4.5	0.0
26.6	55.19	.16	75.0	1.4	59.99	.17	41.6	1.9	63.58	.15	33.2	0.6	46.49	.18	52.4	1.9	20.08	.15	4.5	0.3
Oct. 6.6	55.35	.12	76.4	1.2	60.16	.14	43.5	1.9	63.73	.13	33.8	0.3	46.67	.15	54.3	1.8	20.23	.12	4.8	0.5
16.5	55.47	.10	77.6	1.1	60.30	.11	45.4	1.7	63.86	.09	34.1	0.2	46.82	.11	56.1	1.6	20.35	.09	5.3	0.8
26.5	55.57	.06	78.7	0.9	60.41	.06	47.1	1.6	63.95	.06	34.3	0.0	46.93	.07	57.7	1.5	20.44	.06	6.1	0.9
Nov. 5.5	55.63	.03	79.6	0.7	60.47	.03	48.7	1.4	64.01	.03	34.3	0.2	47.00	.05	59.2	1.4	20.50	.03	7.0	1.1
15.4	55.66	.01	80.3	0.5	60.50	.00	50.1	1.2	64.04	.00	34.1	0.3	47.05	.00	60.6	1.1	20.53	.00	8.1	1.1
25.4	55.65	.03	80.8	0.4	60.50	.04	51.3	1.0	64.04	.02	33.8	0.4	47.05	.03	61.7	1.0	20.53	.03	9.2	1.2
Dec. 5.4	55.62	.06	81.2	0.2	60.46	.07	52.3	0.7	64.02	.05	33.4	0.5	47.02	.06	62.7	0.7	20.50	.05	10.4	1.1
15.4	55.56	.08	81.4	0.0	60.39	.11	53.0	0.4	63.97	.08	32.9	0.5	46.96	.10	63.4	0.4	20.45	.08	11.5	1.1
25.3	55.48	.11	81.4	0.2	60.28	.13	53.4	0.2	63.89	.09	32.4	0.6	46.86	.12	63.8	0.2	20.37	.10	12.6	0.9
35.3	55.37		81.2		60.15		53.6		63.80		31.8		46.74		64.0		20.27		13.5	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Hydri.				ι Cassiopeiæ.				ξ^2 Ceti.				μ Hydri.				δ Ceti.			
	Right Ascension.		Declination South.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination South.		Right Ascension.		Declination South.	
	h m		° '		h m		° '		h m		° '		h m		° '		h m		° '	
	2 19		−69 4		2 21		+66 58		2 23		+ 8 2		2 33		−79 30		2 34		− 0 4	
	s		"		s		"		s		"		s		"		s		"	
Jan. 0.3	64.71	.53	98.7	0.9	20.20	.40	57.2	1.1	9.61	.11	13.8	0.6	40.40	1.14	96.4	0.9	39.86	.11	45.3	0.8
10.3	64.18	.56	99.6	0.3	19.80	.44	58.3	0.5	9.50	.13	13.2	0.6	39.26	1.20	97.3	0.2	39.75	.12	46.1	0.7
20.3	63.62	.58	99.9	0.4	19.36	.47	58.8	0.0	9.37	.14	12.6	0.6	38.06	1.22	97.5	0.3	39.63	.14	46.8	0.6
30.3	63.04	.57	99.5	0.9	18.89	.49	58.8	0.5	9.23	.15	12.0	0.5	36.84	1.22	97.2	0.9	39.49	.15	47.4	0.4
Feb. 9.2	62.47	.54	98.6	1.4	18.40	.47	58.3	1.0	9.08	.15	11.5	0.5	35.62	1.17	96.3	1.5	39.34	.15	47.8	0.3
19.2	61.93	.51	97.2	2.0	17.93	.44	57.3	1.5	8.93	.14	11.0	0.4	34.45	1.10	94.8	2.0	39.19	.15	48.1	0.2
Mar. 1.2	61.42	.45	95.2	2.4	17.49	.39	55.8	1.9	8.79	.13	10.6	0.3	33.35	1.00	92.8	2.4	39.04	.13	48.3	0.0
11.1	60.97	.39	92.8	2.9	17.10	.31	53.9	2.3	8.66	.10	10.3	0.2	32.35	0.88	90.4	2.9	38.91	.11	48.3	0.2
21.1	60.58	.31	89.9	3.2	16.79	.23	51.6	2.4	8.56	.07	10.1	0.0	31.47	0.72	87.5	3.1	38.80	.08	48.1	0.4
31.1	60.27	.22	86.7	3.4	16.56	.13	49.2	2.6	8.49	.03	10.1	0.2	30.75	0.57	84.4	3.5	38.72	.05	47.7	0.6
Apr. 10.1	60.05	.13	83.3	3.6	16.43	.02	46.6	2.6	8.46	.01	10.3	0.4	30.18	0.38	80.9	3.6	38.67	.00	47.1	0.9
20.0	59.92	.02	79.7	3.7	16.41	.09	44.0	2.5	8.47	.06	10.7	0.6	29.80	0.19	77.3	3.7	38.67	.04	46.2	1.0
30.0	59.90	.08	76.0	3.7	16.50	.20	41.5	2.3	8.53	.10	11.3	0.8	29.61	0.01	73.6	3.7	38.71	.09	45.2	1.3
May 10.0	59.98	.19	72.3	3.7	16.70	.30	39.2	2.1	8.63	.15	12.1	1.0	29.62	0.20	69.9	3.7	38.80	.13	43.9	1.5
19.9	60.17	.28	68.6	3.6	17.00	.40	37.1	1.7	8.78	.19	13.1	1.2	29.82	0.39	66.2	3.5	38.93	.18	42.4	1.6
29.9	60.45	.38	65.0	3.3	17.40	.48	35.4	1.3	8.97	.22	14.3	1.5	30.21	0.58	62.7	3.3	39.11	.21	40.8	1.8
June 8.9	60.83	.46	61.7	3.0	17.88	.54	34.1	0.9	9.19	.26	15.8	1.5	30.79	0.74	59.4	3.0	39.32	.24	39.0	1.8
18.9	61.29	.54	58.7	2.6	18.42	.60	33.2	0.5	9.45	.28	17.3	1.7	31.53	0.90	56.4	2.6	39.56	.27	37.2	2.0
28.8	61.83	.59	56.1	2.2	19.02	.63	32.7	0.0	9.73	.29	19.0	1.7	32.43	1.02	53.8	2.2	39.83	.28	35.2	1.9
July 8.8	62.42	.63	53.9	1.7	19.65	.65	32.7	0.5	10.02	.30	20.7	1.8	33.45	1.12	51.6	1.6	40.11	.30	33.3	1.8
18.8	63.05	.66	52.2	1.1	20.30	.65	33.2	0.9	10.32	.31	22.5	1.7	34.57	1.19	50.0	1.1	40.41	.30	31.5	1.8
28.8	63.71	.66	51.1	0.6	20.95	.65	34.1	1.4	10.63	.30	24.2	1.7	35.76	1.22	48.9	0.5	40.71	.30	29.7	1.6
Aug. 7.7	64.37	.65	50.5	0.1	21.60	.62	35.5	1.8	10.93	.28	25.9	1.5	36.98	1.21	48.4	0.1	41.01	.28	28.1	1.4
17.7	65.02	.61	50.6	0.7	22.22	.59	37.3	2.1	11.21	.27	27.4	1.4	38.19	1.16	48.5	0.7	41.29	.27	26.7	1.1
27.7	65.63	.57	51.3	1.2	22.81	.54	39.4	2.4	11.48	.25	28.8	1.1	39.35	1.09	49.2	1.2	41.56	.25	25.6	0.9
Sept. 6.6	66.20	.50	52.5	1.8	23.35	.49	41.8	2.6	11.73	.22	29.9	1.0	40.44	0.97	50.4	1.9	41.81	.23	24.7	0.6
16.6	66.70	.41	54.3	2.3	23.84	.43	44.4	2.9	11.95	.19	30.9	0.7	41.41	0.81	52.3	2.3	42.04	.20	24.1	0.4
26.6	67.11	.32	56.6	2.7	24.27	.36	47.3	3.1	12.14	.17	31.6	0.5	42.22	0.64	54.6	2.7	42.24	.17	23.7	0.1
Oct. 6.6	67.43	.22	59.3	3.0	24.63	.28	50.4	3.1	12.31	.14	32.1	0.3	42.86	0.44	57.3	3.0	42.41	.15	23.6	0.2
16.5	67.65	.11	62.3	3.1	24.91	.21	53.5	3.2	12.45	.10	32.4	0.1	43.30	0.22	60.3	3.2	42.56	.11	23.8	0.4
26.5	67.76	.00	65.4	3.2	25.12	.13	56.7	3.2	12.55	.08	32.5	0.0	43.52	0.00	63.5	3.2	42.67	.09	24.2	0.6
Nov. 5.5	67.76	.10	68.6	3.2	25.25	.04	59.9	3.0	12.63	.05	32.5	0.2	43.52	0.22	66.7	3.2	42.76	.05	24.8	0.7
15.5	67.66	.21	71.8	2.9	25.29	.04	62.9	2.9	12.68	.02	32.3	0.4	43.30	0.44	69.9	3.0	42.81	.03	25.5	0.8
25.4	67.45	.30	74.7	2.7	25.25	.12	65.8	2.6	12.70	.02	31.9	0.4	42.86	0.64	72.9	2.7	42.84	.01	26.3	0.9
Dec. 5.4	67 15	.38	77.4	2.2	25.13	.21	68.4	2.3	12.68	.03	31.5	0.5	42.22	0.81	75.6	2.3	42.83	.03	27.2	0.9
15.4	66.77	.45	79.6	1.8	24.92	.29	70.7	1.9	12.65	.07	31.0	0.5	41.41	0.96	77.9	1.8	42.80	.06	28.1	0.8
25.3	66.32	.50	81.4	1.2	24.63	.36	72.6	1.4	12.58	.09	30.5	0.6	40.45	1.08	79.7	1.2	42.74	.09	28.9	0.8
35.3	65.82		82.6		24.27		74.0		12.49		29.9		39.37		80.9		42.65		29.7	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	θ Persei.				γ Ceti.				σ Arietis.				47 Cephei (H.).				ε Arietis.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 2 37		° ′ +48 49		h m 2 38		° ′ + 2 50		h m 2 46		° ′ +14 41		h m 2 53		° ′ +79 2		h m 2 53		° ′ +20 57	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.3	47.16	.18	56.8	0.7	25.80	.10	15.2	0.7	18.24	.10	36.7	0.4	37.91	0.82	60.5	1.8	50.34	.10	49.3	0.2
10.3	46.98	.22	57.5	0.3	25.70	.13	14.5	0.7	18.14	.13	36.3	0.5	37.09	0.94	62.3	1.3	50.24	.13	49.1	0.3
20.3	46.76	.25	57.8	0.1	25.57	.14	13.8	0.5	18.01	.14	35.8	0.5	36.15	1.03	63.6	0.7	50.11	.15	48.8	0.4
30.3	46.51	.26	57.7	0.5	25.43	.15	13.3	0.5	17.87	.16	35.3	0.5	35.12	1.08	64.3	0.1	49.96	.16	48.4	0.5
Feb. 9.2	46.25	.26	57.2	0.8	25.28	.15	12.8	0.4	17.71	.16	34.8	0.5	34.04	1.08	64.4	0.5	49.80	.17	47.9	0.6
19.2	45.99	.25	56.4	1.2	25.13	.15	12.4	0.3	17.55	.16	34.3	0.6	32.96	1.03	63.9	1.1	49.63	.17	47.3	0.6
Mar. 1.2	45.74	.22	55.2	1.5	24.98	.14	12.1	0.1	17.39	.14	33.7	0.5	31.93	0.94	62.8	1.6	49.46	.16	46.7	0.7
11.2	45.52	.18	53.7	1.7	24.84	.11	12.0	0.1	17.25	.12	33.2	0.4	30.99	0.81	61.2	2.1	49.30	.13	46.0	0.6
21.1	45.34	.14	52.0	1.8	24.73	.08	12.1	0.3	17.13	.09	32.8	0.3	30.18	0.65	59.1	2.4	49.17	.10	45.4	0.6
31.1	45.20	.08	50.2	1.9	24.65	.05	12.4	0.4	17.04	.06	32.5	0.2	29.53	0.46	56.7	2.6	49.07	.06	44.8	0.5
Apr. 10.1	45.12	.01	48.3	1.9	24.60	.00	12.8	0.7	16.98	.01	32.3	0.1	29.07	0.24	54.1	2.9	49.01	.02	44.3	0.4
20.0	45.11	.05	46.4	1.7	24.60	.04	13.5	0.8	16.97	.04	32.2	0.2	28.83	0.03	51.2	2.8	48.99	.03	43.9	0.2
30.0	45.16	.12	44.7	1.5	24.64	.08	14.3	1.1	17.01	.08	32.4	0.4	28.80	0.19	48.4	2.8	49.02	.08	43.7	0.1
May 10.0	45.28	.19	43.2	1.4	24.72	.13	15.4	1.3	17.09	.13	32.8	0.6	28.99	0.40	45.6	2.6	49.10	.13	43.6	0.2
20.0	45.47	.25	41.8	1.0	24.85	.17	16.7	1.5	17.22	.18	33.4	0.8	29.39	0.60	43.0	2.4	49.23	.17	43.8	0.5
29.9	45.72	.30	40.8	0.7	25.02	.21	18.2	1.6	17.40	.21	34.2	1.0	29.99	0.78	40.6	2.0	49.40	.22	44.3	0.6
June 8.9	46.02	.34	40.1	0.3	25.23	.24	19.8	1.8	17.61	.25	35.2	1.2	30.77	0.93	38.6	1.7	49.62	.25	44.9	0.9
18.9	46.36	.38	39.8	0.0	25.47	.27	21.6	1.8	17.86	.27	36.4	1.3	31.70	1.07	36.9	1.2	49.87	.28	45.8	1.0
28.9	46.74	.41	39.8	0.4	25.74	.29	23.4	1.8	18.13	.30	37.7	1.5	32.77	1.16	35.7	0.8	50.15	.30	46.8	1.3
July 8.8	47.15	.42	40.2	0.7	26.03	.29	25.2	1.8	18.43	.30	39.2	1.5	33.93	1.22	34.9	0.2	50.45	.31	48.1	1.3
18.8	47.57	.43	40.9	1.1	26.32	.30	27.0	1.7	18.73	.31	40.7	1.6	35.15	1.27	34.7	0.2	50.76	.32	49.4	1.5
28.8	48.00	.42	42.0	1.4	26.62	.30	28.7	1.6	19.04	.30	42.3	1.6	36.42	1.28	34.9	0.7	51.08	.31	50.9	1.5
Aug. 7.7	48.42	.40	43.4	1.6	26.92	.29	30.3	1.4	19.34	.30	43.9	1.5	37.70	1.27	35.6	1.2	51.39	.31	52.4	1.5
17.7	48.82	.39	45.0	1.9	27.21	.27	31.7	1.3	19.64	.29	45.4	1.4	38.97	1.23	36.8	1.6	51.70	.30	53.9	1.5
27.7	49.21	.36	46.9	2.1	27.48	.25	33.0	1.0	19.93	.26	46.8	1.3	40.20	1.16	38.4	2.0	52.00	.27	55.4	1.4
Sept. 6.7	49.57	.33	49.0	2.2	27.73	.23	34.0	0.7	20.19	.24	48.1	1.2	41.36	1.08	40.4	2.4	52.27	.26	56.8	1.3
16.6	49.90	.30	51.2	2.3	27.96	.20	34.7	0.4	20.43	.22	49.3	1.0	42.44	0.97	42.8	2.7	52.53	.23	58.1	1.2
26.6	50.20	.25	53.5	2.3	28.16	.18	35.1	0.2	20.65	.19	50.3	0.8	43.41	0.85	45.5	3.0	52.76	.21	59.3	1.1
Oct. 6.6	50.45	.22	55.8	2.4	28.34	.15	35.3	0.0	20.84	.16	51.1	0.6	44.26	0.71	48.5	3.2	52.97	.17	60.4	0.9
16.6	50.67	.17	58.2	2.4	28.49	.12	35.3	0.2	21.00	.14	51.7	0.5	44.97	0.55	51.7	3.4	53.14	.15	61.3	0.8
26.5	50.84	.13	60.6	2.3	28.61	.09	35.1	0.4	21.14	.10	52.2	0.3	45.52	0.38	55.1	3.4	53.29	.12	62.1	0.7
Nov. 5.5	50.97	.08	62.9	2.2	28.70	.06	34.7	0.6	21.24	.08	52.5	0.1	45.90	0.19	58.5	3.5	53.41	.08	62.8	0.6
15.5	51.05	.03	65.1	2.1	28.76	.03	34.1	0.6	21.32	.04	52.6	0.1	46.09	0.01	62.0	3.4	53.49	.05	63.4	0.4
25.4	51.08	.02	67.2	1.8	28.79	.00	33.5	0.7	21.36	.01	52.7	0.1	46.10	0.19	65.4	3.2	53.54	.02	63.8	0.3
Dec. 5.4	51.06	.06	69.0	1.5	28.79	.03	32.8	0.8	21.37	.02	52.6	0.2	45.91	0.38	68.6	2.9	53.56	.01	64.1	0.1
15.4	51.00	.12	70.5	1.3	28.76	.06	32.0	0.8	21.35	.05	52.4	0.2	45.53	0.56	71.5	2.6	53.55	.05	64.2	0.1
25.4	50.88	.16	71.8	1.0	28.70	.08	31.2	0.7	21.30	.08	52.2	0.3	44.97	0.73	74.1	2.2	53.50	.08	64.3	0.1
35.3	50.72		72.8		28.62		30.5		21.22		51.9		44.24		76.3		53.42		64.2	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ceti.				β Persei.				48 Cephei (H.).				ζ Arietis.				α Persei.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 2 57		° ′ + 3 43		h m 3 2		° ′ +40 35		h m 3 8		° ′ +77 23		h m 3 9		° ′ +20 41		h m 3 17		° ′ +49 31	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.4	22.04	.09	7.9	0.7	3.51	.13	39.3	0.6	25.95	0.66	31.2	1.9	30.10	.09	42.8	0.1	37.30	.16	39.8	1.1
10.3	21.95	.12	7.2	0.6	3.38	.17	39.9	0.3	25.29	0.77	33.1	1.4	30.01	.13	42.7	0.2	37.14	.20	40.9	0.7
20.3	21.83	.14	6.6	0.6	3.21	.20	40.2	0.0	24.52	0.87	34.5	0.9	29.88	.14	42.5	0.4	36.94	.23	41.6	0.3
30.3	21.69	.15	6.0	0.5	3.01	.22	40.2	0.4	23.65	0.92	35.4	0.3	29.74	.17	42.1	0.4	36.71	.26	41.9	0.1
Feb. 9.2	21.54	.16	5.5	0.4	2.79	.22	39.8	0.6	22.73	0.93	35.7	0.4	29.57	.17	41.7	0.5	36.45	.28	41.8	0.4
19.2	21.38	.16	5.1	0.3	2.57	.22	39.2	0.9	21.80	0.91	35.3	0.9	29.40	.17	41.2	0.6	36.17	.27	41.4	0.8
Mar. 1.2	21.22	.14	4.8	0.1	2.35	.20	38.3	1.1	20.89	0.84	34.4	1.4	29.23	.16	40.6	0.6	35.90	.25	40.6	1.1
11.2	21.08	.13	4.7	0.1	2.15	.18	37.2	1.2	20.05	0.74	33.0	1.9	29.07	.15	40.0	0.6	35.65	.23	39.5	1.4
21.1	20.95	.10	4.8	0.2	1.97	.14	36.0	1.4	19.31	0.61	31.1	2.3	28.92	.11	39.4	0.5	35.42	.19	38.1	1.6
31.1	20.85	.06	5.0	0.4	1.83	.09	34.6	1.5	18.70	0.44	28.8	2.5	28.81	.08	38.9	0.5	35.23	.13	36.5	1.7
Apr. 10.1	20.79	.02	5.4	0.5	1.74	.04	33.1	1.4	18.26	0.27	26.3	2.7	28.73	.03	38.4	0.4	35.10	.07	34.8	1.8
20.1	20.77	.02	5.9	0.8	1.70	.03	31.7	1.3	17.99	0.08	23.6	2.8	28.70	.02	38.0	0.2	35.03	.00	33.0	1.8
30.0	20.79	.06	6.7	1.0	1.73	.08	30.4	1.2	17.91	0.12	20.8	2.8	28.72	.06	37.8	0.0	35.03	.07	31.2	1.6
May 10.0	20.85	.12	7.7	1.2	1.81	.14	29.2	0.9	18.03	0.30	18.0	2.6	28.78	.11	37.8	0.2	35.10	.13	29.6	1.5
20.0	20.97	.15	8.9	1.4	1.95	.19	28.3	0.7	18.33	0.48	15.4	2.4	28.89	.16	38.0	0.4	35.23	.20	28.1	1.3
29.9	21.12	.20	10.3	1.6	2.14	.25	27.6	0.5	18.81	0.65	13.0	2.1	29.05	.20	38.4	0.6	35.43	.26	26.8	1.0
June 8.9	21.32	.23	11.9	1.6	2.39	.29	27.1	0.1	19.46	0.78	10.9	1.8	29.25	.24	39.0	0.8	35.69	.31	25.8	0.7
18.9	21.55	.26	13.5	1.7	2.68	.32	27.0	0.1	20.24	0.91	9.1	1.3	29.49	.27	39.8	1.0	36.00	.35	25.1	0.3
28.9	21.81	.27	15.2	1.8	3.00	.35	27.1	0.5	21.15	1.00	7.8	0.9	29.76	.29	40.8	1.1	36.35	.39	24.8	0.1
July 8.8	22.08	.30	17.0	1.8	3.35	.37	27.6	0.7	22.15	1.07	6.9	0.5	30.05	.31	41.9	1.3	36.74	.41	24.7	0.3
18.8	22.38	.29	18.8	1.7	3.72	.38	28.3	1.0	23.22	1.11	6.4	0.1	30.36	.31	43.2	1.3	37.15	.43	25.0	0.6
28.8	22.67	.30	20.5	1.5	4.10	.38	29.3	1.2	24.33	1.13	6.5	0.5	30.67	.32	44.5	1.4	37.58	.43	25.6	0.9
Aug. 7.8	22.97	.29	22.0	1.4	4.48	.37	30.5	1.5	25.46	1.13	7.0	1.0	30.99	.31	45.9	1.4	38.01	.43	26.5	1.2
17.7	23.26	.28	23.4	1.2	4.85	.35	32.0	1.5	26.59	1.11	8.0	1.4	31.30	.30	47.3	1.4	38.44	.41	27.7	1.5
27.7	23.54	.26	24.6	1.0	5.20	.34	33.5	1.7	27.70	1.05	9.4	1.8	31.60	.29	48.7	1.4	38.85	.40	29.2	1.6
Sept. 6.7	23.80	.25	25.6	0.8	5.54	.31	35.2	1.8	28.75	1.00	11.2	2.2	31.89	.26	50.1	1.2	39.25	.37	30.8	1.8
16.6	24.05	.22	26.4	0.5	5.85	.28	37.0	1.9	29.75	0.90	13.4	2.6	32.15	.24	51.3	1.1	39.62	.35	32.6	2.0
26.6	24.27	.19	26.9	0.2	6.13	.26	38.9	1.9	30.65	0.81	16.0	2.8	32.39	.22	52.4	1.0	39.97	.31	34.6	2.1
Oct. 6.6	24.46	.16	27.1	0.0	6.39	.22	40.8	1.9	31.46	0.68	18.8	3.0	32.61	.19	53.4	0.9	40.28	.27	36.7	2.1
16.6	24.62	.14	27.1	0.2	6.61	.19	42.7	1.8	32.14	0.56	21.8	3.3	32.80	.17	54.3	0.7	40.55	.24	38.8	2.2
26.5	24.76	.11	26.9	0.4	6.80	.14	44.5	1.8	32.70	0.41	25.1	3.3	32.97	.13	55.0	0.6	40.79	.19	41.0	2.2
Nov. 5.5	24.87	.08	26.5	0.6	6.94	.11	46.3	1.7	33.11	0.25	28.4	3.4	33.10	.10	55.6	0.5	40.98	.14	43.2	2.2
15.5	24.95	.05	25.9	0.6	7.05	.07	48.0	1.6	33.36	0.09	31.8	3.3	33.20	.07	56.1	0.4	41.12	.10	45.4	2.1
25.5	25.00	.02	25.3	0.7	7.12	.03	49.6	1.5	33.45	0.08	35.1	3.2	33.27	.04	56.5	0.3	41.22	.04	47.5	1.9
Dec. 5.4	25.02	.02	24.6	0.7	7.15	.02	51.1	1.2	33.37	0.25	38.3	3.0	33.31	.00	56.8	0.1	41.26	.02	49.4	1.8
15.4	25.00	.04	23.9	0.8	7.13	.07	52.3	1.0	33.12	0.42	41.3	2.6	33.31	.04	56.9	0.1	41.24	.07	51.2	1.5
25.4	24.96	.08	23.1	0.7	7.06	.11	53.3	0.8	32.70	0.57	43.9	2.3	33.27	.07	57.0	0.1	41.17	.12	52.7	1.3
35.3	24.88		22.4		6.95		54.1		32.13		46.2		33.20		56.9		41.05		54.0	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ι Hydri.				*f* Tauri.				ε Eridani.				δ Persei.				γ Camelopardalis.			
	Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.	
	h m 3 18		° ′ −77 43		h m 3 25		° ′ +12 36		h m 3 28		° ′ − 9 46		h m 3 36		° ′ +47 29		h m 3 40		° ′ +71 2	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.4	20.11	0.90	79.3	1.6	41.26	.08	47.0	0.4	30.37	.09	46.3	1.2	14.56	.12	15.8	1.1	28.03	.34	39.6	2.0
10.3	19.21	0.99	80.9	0.9	41.18	.11	46.6	0.4	30.28	.12	47.5	1.0	14.44	.17	16.9	0.8	27.69	.44	41.6	1.6
20.3	18.22	1.04	81.8	0.4	41.07	.14	46.2	0.4	30.16	.14	48.5	0.7	14.27	.22	17.7	0.4	27.25	.52	43.2	1.1
30.3	17.18	1.07	82.2	0.2	40.93	.15	45.8	0.5	30.02	.16	49.2	0.6	14.05	.24	18.1	0.1	26.73	.57	44.3	0.6
Feb. 9.3	16.11	1.08	82.0	0.7	40.78	.17	45.3	0.4	29.86	.17	49.8	0.3	13.81	.26	18.2	0.2	26.16	.61	44.9	0.0
19.2	15.03	1.04	81.3	1.4	40.61	.17	44.9	0.4	29.69	.18	50.1	0.0	13.55	.27	18.0	0.6	25.55	.60	44.9	0.5
Mar. 1.2	13.99	0.99	79.9	1.8	40.44	.16	44.5	0.3	29.51	.17	50.1	0.3	13.28	.25	17.4	0.9	24.95	.59	44.4	1.0
11.2	13.00	0.90	78.1	2.3	40.28	.15	44.2	0.3	29.34	.15	49.8	0.5	13.03	.23	16.5	1.2	24.36	.53	43.4	1.5
21.2	12.10	0.80	75.8	2.7	40.13	.12	43.9	0.2	29.19	.13	49.3	0.7	12.80	.19	15.3	1.4	23.83	.45	41.9	1.8
31.1	11.30	0.67	73.1	3.0	40.01	.08	43.7	0.0	29.06	.09	48.6	1.0	12.61	.15	13.9	1.6	23.38	.36	40.1	2.2
Apr. 10.1	10.63	0.53	70.1	3.3	39.93	.05	43.7	0.1	28.97	.06	47.6	1.3	12.46	.09	12.3	1.6	23.02	.24	37.9	2.4
20.1	10.10	0.36	66.8	3.5	39.88	.00	43.8	0.2	28.91	.02	46.3	1.5	12.37	.02	10.7	1.6	22.78	.12	35.5	2.5
30.0	9.74	0.21	63.3	3.7	39.88	.04	44.0	0.5	28.89	.03	44.8	1.7	12.35	.04	9.1	1.5	22.66	.01	33.0	2.6
May 10.0	9.53	0.03	59.6	3.7	39.92	.09	44.5	0.6	28.92	.07	43.1	1.9	12.39	.11	7.6	1.4	22.67	.14	30.4	2.5
20.0	9.50	0.15	55.9	3.6	40.01	.14	45.1	0.8	28.99	.12	41.2	2.0	12.50	.17	6.2	1.3	22.81	.27	27.9	2.3
30.0	9.65	0.31	52.3	3.5	40.15	.18	45.9	1.0	29.11	.16	39.2	2.1	12.67	.23	4.9	1.0	23.08	.39	25.6	2.1
June 8.9	9.96	0.48	48.8	3.3	40.33	.22	46.9	1.1	29.27	.20	37.1	2.2	12.90	.28	3.9	0.7	23.47	.49	23.5	1.8
18.9	10.44	0.62	45.5	3.0	40.55	.25	48.0	1.3	29.47	.23	34.9	2.2	13.18	.33	3.2	0.4	23.96	.59	21.7	1.5
28.9	11.06	0.76	42.5	2.6	40.80	.27	49.3	1.4	29.70	.26	32.7	2.1	13.51	.36	2.8	0.2	24.55	.66	20.2	1.1
July 8.9	11.82	0.87	39.9	2.2	41.07	.29	50.7	1.4	29.96	.27	30.6	2.1	13.87	.39	2.6	0.2	25.21	.72	19.1	0.7
18.8	12.69	0.96	37.7	1.7	41.36	.30	52.1	1.4	30.23	.29	28.5	1.8	14.26	.41	2.8	0.4	25.93	.76	18.4	0.2
28.8	13.65	1.02	36.0	1.1	41.66	.30	53.5	1.4	30.52	.29	26.7	1.7	14.67	.41	3.2	0.8	26.69	.78	18.2	0.2
Aug. 7.8	14.67	1.04	34.9	0.6	41.96	.30	54.9	1.4	30.81	.29	25.0	1.3	15.08	.41	4.0	1.0	27.47	.80	18.4	0.6
17.7	15.71	1.04	34.3	0.1	42.26	.29	56.3	1.3	31.10	.29	23.7	1.0	15.49	.41	5.0	1.2	28.27	.79	19.0	1.0
27.7	16.75	1.01	34.4	0.7	42.55	.28	57.6	1.1	31.39	.27	22.7	0.7	15.90	.40	6.2	1.4	29.06	.77	20.0	1.3
Sept. 6.7	17.76	0.94	35.1	1.3	42.83	.27	58.7	0.9	31.66	.25	22.0	0.3	16.30	.37	7.6	1.6	29.83	.74	21.3	1.8
16.7	18.70	0.84	36.4	1.9	43.10	.24	59.6	0.8	31.91	.24	21.7	0.0	16.67	.35	9.2	1.7	30.57	.69	23.1	2.1
26.6	19.54	0.71	38.3	2.3	43.34	.22	60.4	0.6	32.15	.21	21.7	0.4	17.02	.32	10.9	1.9	31.26	.64	25.2	2.3
Oct. 6.6	20.25	0.55	40.6	2.8	43.56	.20	61.0	0.4	32.36	.19	22.1	0.7	17.34	.29	12.8	1.9	31.90	.56	27.5	2.7
16.6	20.80	0.39	43.4	3.0	43.76	.17	61.4	0.2	32.55	.16	22.8	1.0	17.63	.25	14.7	2.0	32.46	.49	30.2	2.8
26.6	21.19	0.20	46.4	3.3	43.93	.14	61.6	0.1	32.71	.14	23.8	1.2	17.88	.22	16.7	2.0	32.95	.40	33.0	2.9
Nov. 5.5	21.39	0.01	49.7	3.3	44.07	.12	61.7	0.1	32.85	.10	25.0	1.4	18.10	.17	18.7	2.0	33.35	.29	35.9	3.1
15.5	21.40	0.18	53.0	3.2	44.19	.08	61.6	0.1	32.95	.07	26.4	1.5	18.27	.12	20.7	1.9	33.64	.19	39.0	3.0
25.5	21.22	0.36	56.2	3.0	44.27	.05	61.5	0.3	33.02	.03	27.9	1.5	18.39	.07	22.6	1.9	33.83	.08	42.0	3.0
Dec. 5.4	20.86	0.54	59.2	2.8	44.32	.01	61.2	0.3	33.05	.00	29.4	1.5	18.46	.02	24.5	1.7	33.91	.04	45.0	2.9
15.4	20.32	0.70	62.0	2.3	44.33	.02	60.9	0.3	33.05	.03	30.9	1.4	18.48	.04	26.2	1.5	33.87	.16	47.9	2.6
25.4	19.62	0.82	64.3	1.9	44.31	.06	60.6	0.4	33.02	.07	32.3	1.3	18.44	.09	27.7	1.3	33.71	.27	50.5	2.3
35.4	18.80		66.2		44.25		60.2		32.95		33.6		18.35		29.0		33.44		52.8	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Tauri.				ζ Persei.				γ Hydri.				ε Persei.				γ Eridani.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m 3 41		° ′ +23 48		h m 3 48		° ′ +31 36		h m 3 48		° ′ −74 31		h m 3 51		° ′ +39 44		h m 3 53		° ′ −13 46	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.4	54.16	.07	49.1	0.1	13.83	.08	14.9	0.4	44.12	.64	60.2	2.0	33.34	.09	18.3	0.8	39.04	.08	45.4	1.4
10.3	54.09	.11	49.2	0.0	13.75	.11	15.3	0.3	43.48	.73	62.2	1.4	33.25	.13	19.1	0.6	38.96	.11	46.8	1.2
20.3	53.98	.14	49.2	0.2	13.64	.16	15.6	0.1	42.75	.80	63.6	0.9	33.12	.17	19.7	0.4	38.85	.14	48.0	0.9
30.3	53.84	.16	49.0	0.2	13.48	.17	15.7	0.1	41.95	.85	64.5	0.4	32.95	.20	20.1	0.1	38.71	.16	48.9	0.7
Feb. 9.3	53.68	.18	48.8	0.3	13.31	.20	15.6	0.3	41.10	.86	64.9	0.3	32.75	.22	20.2	0.2	38.55	.17	49.6	0.3
19.2	53.50	.19	48.5	0.5	13.11	.20	15.3	0.4	40.24	.86	64.6	0.8	32.53	.23	20.0	0.5	38.38	.18	49.9	0.1
Mar. 1.2	53.31	.18	48.0	0.5	12.91	.20	14.9	0.6	39.38	.83	63.8	1.4	32.30	.23	19.5	0.7	38.20	.19	50.0	0.2
11.2	53.13	.16	47.5	0.6	12.71	.18	14.3	0.7	38.55	.78	62.4	1.8	32.07	.20	18.8	0.9	38.01	.17	49.8	0.5
21.2	52.97	.14	46.9	0.6	12.53	.16	13.6	0.9	37.77	.71	60.6	2.3	31.87	.18	17.9	1.0	37.84	.14	49.3	0.8
31.1	52.83	.11	46.3	0.5	12.37	.12	12.7	0.8	37.06	.62	58.3	2.7	31.69	.14	16.9	1.2	37.70	.12	48.5	1.1
Apr. 10.1	52.72	.06	45.8	0.5	12.25	.08	11.9	0.9	36.44	.51	55.6	3.0	31.55	.09	15.7	1.2	37.58	.08	47.4	1.4
20.1	52.66	.02	45.3	0.4	12.17	.02	11.0	0.8	35.93	.39	52.6	3.3	31.46	.04	14.5	1.2	37.50	.04	46.0	1.6
30.1	52.64	.03	44.9	0.2	12.15	.03	10.2	0.7	35.54	.26	49.3	3.5	31.42	.03	13.3	1.2	37.46	.00	44.4	1.8
May 10.0	52.67	.08	44.7	0.1	12.18	.08	9.5	0.5	35.28	.12	45.8	3.6	31.45	.08	12.1	1.0	37.46	.05	42.6	2.1
20.0	52.75	.13	44.6	0.1	12.26	.13	9.0	0.4	35.16	.02	42.2	3.7	31.53	.14	11.1	0.8	37.51	.09	40.5	2.1
30.0	52.88	.18	44.7	0.3	12.39	.18	8.6	0.2	35.18	.16	38.5	3.6	31.67	.19	10.3	0.7	37.60	.14	38.4	2.3
June 8.9	53.06	.22	45.0	0.5	12.57	.23	8.4	0.1	35.34	.30	34.9	3.5	31.86	.24	9.6	0.4	37.74	.18	36.1	2.4
18.9	53.28	.25	45.5	0.6	12.80	.26	8.5	0.2	35.64	.43	31.4	3.2	32.10	.29	9.2	0.2	37.92	.21	33.7	2.3
28.9	53.53	.28	46.1	0.8	13.06	.29	8.7	0.4	36.07	.54	28.2	2.9	32.39	.31	9.0	0.1	38.13	.24	31.4	2.3
July 8.9	53.81	.30	46.9	1.0	13.35	.32	9.1	0.7	36.61	.64	25.3	2.6	32.70	.34	9.1	0.3	38.37	.26	29.1	2.1
18.8	54.11	.31	47.9	1.1	13.67	.33	9.8	0.8	37.25	.73	22.7	2.0	33.04	.36	9.4	0.5	38.63	.28	27.0	1.9
28.8	54.42	.32	49.0	1.2	14.00	.34	10.6	0.9	37.98	.79	20.7	1.6	33.40	.37	9.9	0.7	38.91	.29	25.1	1.7
Aug. 7.8	54.74	.32	50.2	1.2	14.34	.34	11.5	1.1	38.77	.83	19.1	1.0	33.77	.37	10.6	0.9	39.20	.30	23.4	1.4
17.8	55.06	.32	51.4	1.2	14.68	.34	12.6	1.2	39.60	.85	18.1	0.3	34.14	.37	11.5	1.1	39.50	.29	22.0	1.1
27.7	55.38	.30	52.6	1.1	15.02	.32	13.8	1.2	40.45	.83	17.8	0.2	34.51	.36	12.6	1.3	39.79	.28	20.9	0.6
Sept. 6.7	55.68	.29	53.7	1.1	15.34	.31	15.0	1.2	41.28	.80	18.0	0.9	34.87	.34	13.9	1.3	40.07	.27	20.3	0.3
16.7	55.97	.27	54.8	1.1	15.65	.30	16.2	1.2	42.08	.74	18.9	1.5	35.21	.33	15.2	1.4	40.34	.26	20.0	0.2
26.6	56.24	.25	55.9	1.0	15.95	.27	17.4	1.2	42.82	.65	20.4	2.1	35.54	.30	16.6	1.4	40.60	.23	20.2	0.5
Oct. 6.6	56.49	.23	56.9	0.8	16.22	.25	18.6	1.2	43.47	.54	22.5	2.5	35.84	.27	18.0	1.5	40.83	.21	20.7	0.9
16.6	56.72	.20	57.7	0.8	16.47	.22	19.8	1.2	44.01	.42	25.0	2.9	36.11	.25	19.5	1.6	41.04	.18	21.6	1.2
26.6	56.92	.17	58.5	0.7	16.69	.19	21.0	1.1	44.43	.28	27.9	3.1	36.36	.21	21.1	1.5	41.22	.16	22.8	1.4
Nov. 5.5	57.09	.14	59.2	0.6	16.88	.15	22.1	1.0	44.71	.13	31.0	3.3	36.57	.18	22.6	1.5	41.38	.13	24.2	1.7
15.5	57.23	.10	59.8	0.5	17.03	.12	23.1	1.0	44.84	.02	34.3	3.4	36.75	.13	24.1	1.4	41.51	.09	25.9	1.7
25.5	57.33	.07	60.3	0.4	17.15	.08	24.1	0.9	44.82	.18	37.7	3.2	36.88	.09	25.5	1.4	41.60	.06	27.6	1.8
Dec. 5.5	57.40	.04	60.7	0.4	17.23	.04	25.0	0.8	44.64	.32	40.9	3.0	36.97	.04	26.9	1.3	41.66	.02	29.4	1.8
15.4	57.44	.01	61.1	0.2	17.27	.00	25.8	0.7	44.32	.45	43.9	2.7	37.01	.01	28.2	1.1	41.68	.02	31.2	1.7
25.4	57.43	.05	61.3	0.2	17.27	.05	26.5	0.5	43.87	.58	46.6	2.3	37.00	.05	29.3	1.0	41.66	.05	32.9	1.5
35.4	57.38		61.5		17.22		27.0		43.29		48.9		36.95		30.3		41.61		34.4	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	A¹ Tauri.				ε Persei.				ο¹ Eridani.				γ Tauri.				ε Tauri.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination South.		Right Ascension.		Declination North.		Right Ascension.		Declination North.	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	3 59		+21 49		4 1		+47 27		4 7		− 7 4		4 14		+15 23		4 23		+18 58	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.4	8.70	.06	26.5	0.0	51.02	.10	42.9	1.2	17.06	.06	67.9	1.2	27.08	.04	56.8	0.3	8.16	.04	14.1	0.1
10.4	8.64	.10	26.5	0.0	50.92	.15	44.1	1.0	17.00	.10	69.1	1.1	27.04	.09	56.5	0.2	8.12	.08	14.0	0.1
20.4	8.54	.13	26.5	0.1	50.77	.19	45.1	0.7	16.90	.12	70.2	0.8	26.95	.11	56.3	0.3	8.04	.12	13.9	0.2
30.3	8.41	.16	26.4	0.2	50.58	.23	45.8	0.3	16.78	.15	71.0	0.7	26.84	.15	56.0	0.3	7.92	.14	13.7	0.1
Feb. 9.3	8.25	.17	26.2	0.3	50.35	.26	46.1	0.0	16.63	.17	71.7	0.4	26.69	.17	55.7	0.3	7.78	.17	13.6	0.2
19.3	8.08	.19	25.9	0.3	50.09	.27	46.1	0.3	16.46	.18	72.1	0.2	26.52	.18	55.4	0.3	7.61	.19	13.4	0.3
Mar. 1.2	7.89	.18	25.6	0.4	49.82	.26	45.8	0.7	16.28	.18	72.3	0.1	26.34	.18	55.1	0.2	7.42	.18	13.1	0.3
11.2	7.71	.17	25.2	0.5	49.56	.25	45.1	1.0	16.10	.17	72.2	0.3	26.16	.17	54.9	0.3	7.24	.18	12.8	0.3
21.2	7.54	.15	24.7	0.5	49.31	.22	44.1	1.2	15.93	.15	71.9	0.5	25.99	.15	54.6	0.2	7.06	.16	12.5	0.2
31.2	7.39	.12	24.2	0.4	49.09	.17	42.9	1.3	15.78	.12	71.4	0.8	25.84	.12	54.4	0.1	6.90	.13	12.3	0.3
Apr. 10.1	7.27	.08	23.8	0.3	48.92	.12	41.6	1.5	15.66	.09	70.6	1.0	25.72	.09	54.3	0.0	6.77	.10	12.0	0.2
20.1	7.19	.03	23.5	0.3	48.80	.06	40.1	1.6	15.57	.05	69.6	1.3	25.63	.05	54.3	0.1	6.67	.05	11.8	0.1
30.1	7.16	.02	23.2	0.1	48.74	.01	38.5	1.5	15.52	.00	68.3	1.4	25.58	.00	54.4	0.2	6.62	.01	11.7	0.0
May 10.0	7.18	.06	23.1	0.0	48.75	.07	37.0	1.4	15.52	.04	66.9	1.7	25.58	.05	54.6	0.4	6.61	.04	11.7	0.2
20.0	7.24	.12	23.1	0.2	48.82	.14	35.6	1.3	15.56	.09	65.2	1.8	25.63	.10	55.0	0.5	6.65	.09	11.9	0.3
30.0	7.36	.15	23.3	0.3	48.96	.20	34.3	1.2	15.65	.13	63.4	1.9	25.73	.14	55.5	0.6	6.74	.14	12.2	0.4
June 9.0	7.51	.20	23.6	0.5	49.16	.26	33.1	0.9	15.78	.17	61.5	2.0	25.87	.17	56.1	0.8	6.88	.17	12.6	0.6
18.9	7.71	.24	24.1	0.7	49.42	.30	32.2	0.6	15.95	.20	59.5	2.1	26.04	.22	56.9	1.0	7.05	.22	13.2	0.7
28.9	7.95	.27	24.8	0.8	49.72	.34	31.6	0.4	16.15	.23	57.4	2.0	26.26	.24	57.9	1.0	7.27	.24	13.9	0.8
July 8.9	8.22	.29	25.6	0.9	50.06	.38	31.2	0.1	16.38	.26	55.4	2.0	26.50	.27	58.9	1.1	7.51	.27	14.7	0.9
18.9	8.51	.30	26.5	1.0	50.44	.39	31.1	0.2	16.64	.27	53.4	1.8	26.77	.29	60.0	1.2	7.78	.29	15.6	1.0
28.8	8.81	.31	27.5	1.1	50.83	.41	31.3	0.4	16.91	.28	51.6	1.6	27.06	.30	61.2	1.1	8.07	.30	16.6	1.0
Aug. 7.8	9.12	.32	28.6	1.1	51.24	.42	31.7	0.7	17.19	.29	50.0	1.4	27.36	.30	62.3	1.1	8.37	.30	17.6	1.0
17.8	9.44	.31	29.7	1.1	51.66	.41	32.4	0.9	17.48	.29	48.6	1.1	27.66	.30	63.4	1.0	8.67	.31	18.6	1.0
27.8	9.75	.30	30.8	1.0	52.07	.41	33.3	1.2	17.77	.28	47.5	0.8	27.96	.30	64.4	0.9	8.98	.30	19.6	0.9
Sept. 6.7	10.05	.29	31.8	1.0	52.48	.39	34.5	1.3	18.05	.27	46.7	0.4	28.26	.28	65.3	0.8	9.28	.30	20.5	0.7
16.7	10.34	.28	32.8	0.9	52.87	.37	35.8	1.4	18.32	.26	46.3	0.0	28.54	.28	66.1	0.7	9.58	.28	21.2	0.7
26.7	10.62	.26	33.7	0.8	53.24	.35	37.2	1.6	18.58	.24	46.3	0.2	28.82	.25	66.8	0.5	9.86	.27	21.9	0.6
Oct. 6.6	10.88	.24	34.5	0.7	53.59	.32	38.8	1.8	18.82	.22	46.5	0.6	29.07	.24	67.3	0.3	10.13	.25	22.5	0.4
16.6	11.12	.21	35.2	0.6	53.91	.28	40.6	1.7	19.04	.20	47.1	0.9	29.31	.22	67.6	0.2	10.38	.23	22.9	0.3
26.6	11.33	.19	35.8	0.5	54.19	.25	42.3	1.9	19.24	.17	48.0	1.1	29.53	.20	67.8	0.1	10.61	.21	23.2	0.3
Nov. 5.6	11.52	.15	36.3	0.4	54.44	.21	44.2	1.9	19.41	.14	49.1	1.3	29.73	.16	67.9	0.0	10.82	.18	23.5	0.1
15.5	11.67	.13	36.7	0.3	54.65	.16	46.1	1.8	19.55	.11	50.4	1.5	29.89	.14	67.9	0.1	11.00	.14	23.6	0.1
25.5	11.80	.08	37.0	0.3	54.81	.11	47.9	1.9	19.66	.08	51.9	1.5	30.03	.10	67.8	0.2	11.14	.11	23.7	0.1
Dec. 5.5	11.88	.05	37.3	0.2	54.92	.05	49.8	1.7	19.74	.04	53.4	1.4	30.13	.06	67.6	0.2	11.25	.08	23.8	0.0
15.4	11.93	.01	37.5	0.2	54.97	.00	51.5	1.6	19.78	.00	54.8	1.4	30.19	.02	67.4	0.2	11.33	.03	23.8	0.0
25.4	11.94	.03	37.7	0.1	54.97	.06	53.1	1.4	19.78	.03	56.2	1.3	30.21	.02	67.2	0.3	11.36	.01	23.8	0.1
35.4	11.91		37.8		54.91		54.5		19.75		57.5		30.19		66.9		11.35		23.7	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*δ* Mensæ.				*m* Persei.				*α* Tauri. (*Aldebaran*.)				*τ* Tauri.				*α* Camelopardalis.			
	Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.	
	h m 4 24		° ′ −80 25		h m 4 26		° ′ +42 51		h m 4 30		° ′ +16 19		h m 4 36		° ′ +22 46		h m 4 44		° ′ +66 10	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.4	25.15	0.98	84.4	2.4	48.81	.06	46.6	1.1	32.10	.03	7.5	0.2	36.74	.03	31.2	0.1	44.20	.13	60.9	2.3
10.4	24.17	1.15	86.8	1.8	48.75	.11	47.7	1.0	32.07	.08	7.3	0.2	36.71	.07	31.3	0.1	44.07	.22	63.2	2.0
20.4	23.02	1.28	88.6	1.4	48.64	.15	48.7	0.7	31.99	.11	7.1	0.2	36.64	.11	31.4	0.0	43.85	.32	65.2	1.7
30.3	21.74	1.38	90.0	0.8	48.49	.20	49.4	0.4	31.88	.14	6.9	0.2	36.53	.14	31.4	0.0	43.53	.38	66.9	1.2
Feb. 9.3	20.36	1.45	90.8	0.2	48.29	.23	49.8	0.2	31.74	.16	6.7	0.3	36.39	.17	31.4	0.1	43.15	.45	68.1	0.8
19.3	18.91	1.46	91.0	0.3	48.06	.24	50.0	0.1	31.58	.18	6.4	0.2	36.22	.19	31.3	0.2	42.70	.47	68.9	0.3
Mar. 1.3	17.45	1.44	90.7	0.8	47.82	.25	49.9	0.4	31.40	.19	6.2	0.2	36.03	.19	31.1	0.2	42.23	.49	69.2	0.2
11.2	16.01	1.39	89.9	1.4	47.57	.24	49.5	0.7	31.21	.18	6.0	0.2	35.84	.19	30.9	0.3	41.74	.47	69.0	0.6
21.2	14.62	1.30	88.5	1.9	47.33	.21	48.8	0.9	31.03	.16	5.8	0.2	35.65	.17	30.6	0.3	41.27	.43	68.4	1.1
31.2	13.32	1.18	86.6	2.3	47.12	.18	47.9	1.0	30.87	.13	5.6	0.2	35.48	.14	30.3	0.4	40.84	.38	67.3	1.5
Apr. 10.1	12.14	1.03	84.3	2.6	46.94	.13	46.9	1.2	30.74	.10	5.4	0.0	35.34	.11	29.9	0.3	40.46	.30	65.8	1.9
20.1	11.11	0.86	81.7	3.0	46.81	.08	45.7	1.2	30.64	.06	5.4	0.0	35.23	.07	29.6	0.3	40.16	.21	63.9	2.0
30.1	10.25	0.67	78.7	3.2	46.73	.02	44.5	1.3	30.58	.02	5.4	0.2	35.16	.02	29.3	0.2	39.95	.12	61.9	2.2
May 10.1	9.58	0.45	75.5	3.4	46.71	.04	43.2	1.2	30.56	.04	5.6	0.3	35.14	.03	29.1	0.1	39.83	.01	59.7	2.3
20.0	9.13	0.24	72.1	3.5	46.75	.10	42.0	1.1	30.60	.08	5.9	0.4	35.17	.08	29.0	0.1	39.82	.09	57.4	2.3
30.0	8.89	0.01	68.6	3.5	46.85	.16	40.9	1.0	30.68	.12	6.3	0.5	35.25	.12	29.1	0.1	39.91	.19	55.1	2.2
June 9.0	8.88	0.21	65.1	3.5	47.01	.22	39.9	0.8	30.80	.17	6.8	0.7	35.37	.17	29.2	0.3	40.10	.30	52.9	2.0
19.0	9.09	0.42	61.6	3.3	47.23	.26	39.1	0.5	30.97	.20	7.5	0.9	35.54	.21	29.5	0.5	40.40	.37	50.9	1.8
28.9	9.51	0.64	58.3	3.1	47.49	.30	38.6	0.4	31.17	.23	8.4	0.9	35.75	.24	30.0	0.5	40.77	.46	49.1	1.6
July 8.9	10.15	0.82	55.2	2.7	47.79	.33	38.2	0.2	31.40	.26	9.3	1.0	35.99	.27	30.5	0.7	41.23	.52	47.5	1.3
18.9	10.97	0.99	52.5	2.4	48.12	.36	38.0	0.1	31.66	.28	10.3	1.0	36.26	.28	31.2	0.8	41.75	.57	46.2	0.9
28.9	11.96	1.12	50.1	1.9	48.48	.37	38.1	0.3	31.94	.30	11.3	1.0	36.54	.30	32.0	0.8	42.32	.62	45.3	0.6
Aug. 7.8	13.08	1.23	48.2	1.3	48.85	.38	38.4	0.5	32.24	.30	12.3	1.0	36.84	.31	32.8	0.8	42.94	.64	44.7	0.2
17.8	14.31	1.29	46.9	0.8	49.23	.39	38.9	0.7	32.54	.30	13.3	0.9	37.15	.32	33.6	0.8	43.58	.66	44.5	0.1
27.8	15.60	1.31	46.1	0.1	49.62	.38	39.6	0.8	32.84	.30	14.2	0.9	37.47	.31	34.4	0.8	44.24	.66	44.6	0.5
Sept. 6.7	16.91	1.30	46.0	0.5	50.00	.38	40.4	1.0	33.14	.29	15.1	0.7	37.78	.31	35.2	0.8	44.90	.66	45.1	0.8
16.7	18.21	1.23	46.5	1.1	50.38	.36	41.4	1.1	33.43	.28	15.8	0.5	38.09	.29	36.0	0.6	45.56	.65	45.9	1.1
26.7	19.44	1.12	47.6	1.7	50.74	.35	42.5	1.2	33.71	.27	16.3	0.5	38.38	.29	36.6	0.6	46.21	.61	47.0	1.5
Oct. 6.7	20.56	0.98	49.3	2.2	51.09	.32	43.7	1.3	33.98	.25	16.8	0.3	38.67	.26	37.2	0.5	46.82	.58	48.5	1.7
16.6	21.54	0.80	51.5	2.6	51.41	.29	45.0	1.4	34.23	.24	17.1	0.1	38.93	.25	37.7	0.5	47.40	.54	50.2	2.1
26.6	22.34	0.58	54.1	3.0	51.70	.27	46.4	1.5	34.47	.21	17.2	0.1	39.18	.22	38.2	0.3	47.94	.48	52.3	2.2
Nov. 5.6	22.92	0.35	57.1	3.2	51.97	.23	47.9	1.5	34.68	.18	17.3	0.1	39.40	.20	38.5	0.3	48.42	.41	54.5	2.5
15.5	23.27	0.11	60.3	3.4	52.20	.18	49.4	1.5	34.86	.15	17.2	0.1	39.60	.16	38.8	0.3	48.83	.33	57.0	2.6
25.5	23.38	0.16	63.7	3.3	52.38	.14	50.9	1.5	35.01	.12	17.1	0.1	39.76	.13	39.1	0.3	49.16	.24	59.6	2.6
Dec. 5.5	23.22	0.40	67.0	3.1	52.52	.09	52.4	1.4	35.13	.08	17.0	0.2	39.89	.09	39.4	0.2	49.40	.14	62.2	2.7
15.5	22.82	0.64	70.1	3.0	52.61	.03	53.8	1.4	35.21	.04	16.8	0.2	39.98	.05	39.6	0.2	49.54	.05	64.9	2.6
25.4	22.18	0.85	73.1	2.6	52.64	.02	55.2	1.3	35.25	.01	16.6	0.2	40.03	.00	39.8	0.2	49.59	.06	67.5	2.4
35.4	21.33		75.7		52.62		56.5		35.24		16.4		40.03		40.0		49.53		69.9	

FIXED STARS, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*i* Tauri.				ι Aurigæ.				ζ Aurigæ.				11 Orionis.				β Eridani.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m 4 45		° ′ +18 40		h m 4 50		° ′ +33 0		h m 4 55		° ′ +40 56		h m 4 59		° ′ +15 16		h m 5 3		° ′ − 5 12	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.4	53.05	.02	42.1	0.1	52.99	.02	58.9	0.7	55.24	.02	17.0	1.2	12.45	.01	17.3	0.3	14.36	.02	37.8	1.3
10.4	53.03	.06	42.0	0.1	52.97	.07	59.6	0.6	55.22	.08	18.2	1.0	12.44	.05	17.0	0.2	14.34	.06	39.1	1.2
20.4	52.97	.10	41.9	0.1	52.90	.12	60.2	0.5	55.14	.13	19.2	0.8	12.39	.10	16.8	0.2	14.28	.09	40.3	1.0
30.4	52.87	.14	41.8	0.1	52.78	.15	60.7	0.3	55.01	.17	20.0	0.6	12.29	.12	16.6	0.2	14.19	.13	41.3	0.8
Feb. 9.3	52.73	.16	41.7	0.1	52.63	.19	61.0	0.2	54.84	.21	20.6	0.4	12.17	.16	16.4	0.2	14.06	.16	42.1	0.6
19.3	52.57	.18	41.6	0.2	52.44	.20	61.2	0.0	54.63	.23	21.0	0.1	12.01	.18	16.2	0.1	13.90	.18	42.7	0.3
Mar. 1.3	52.39	.19	41.4	0.2	52.24	.22	61.2	0.2	54.40	.24	21.1	0.1	11.83	.18	16.1	0.1	13.72	.18	43.0	0.1
11.2	52.20	.18	41.2	0.2	52.02	.21	61.0	0.3	54.16	.24	21.0	0.4	11.65	.19	16.0	0.1	13.54	.19	43.1	0.1
21.2	52.02	.17	41.0	0.2	51.81	.19	60.7	0.5	53.92	.22	20.6	0.6	11.46	.17	15.9	0.1	13.35	.17	43.0	0.3
31.2	51.85	.15	40.8	0.1	51.62	.17	60.2	0.6	53.70	.19	20.0	0.8	11.29	.15	15.8	0.1	13.18	.15	42.7	0.6
Apr. 10.2	51.70	.11	40.7	0.2	51.45	.13	59.6	0.7	53.51	.16	19.2	1.0	11.14	.12	15.7	0.1	13.03	.13	42.1	0.7
20.1	51.59	.07	40.5	0.0	51.32	.09	58.9	0.7	53.35	.10	18.2	1.0	11.02	.08	15.8	0.1	12.90	.09	41.4	1.0
30.1	51.52	.03	40.5	0.0	51.23	.03	58.2	0.7	53.25	.05	17.2	1.1	10.94	.04	15.9	0.2	12.81	.05	40.4	1.2
May 10.1	51.49	.02	40.5	0.1	51.20	.01	57.5	0.7	53.20	.01	16.1	1.1	10.90	.01	16.1	0.3	12.76	.01	39.2	1.4
20.1	51.51	.07	40.6	0.3	51.21	.07	56.8	0.6	53.21	.06	15.0	1.0	10.91	.05	16.4	0.4	12.75	.03	37.8	1.6
30.1	51.58	.11	40.9	0.4	51.28	.12	56.2	0.5	53.27	.12	14.0	1.0	10.96	.10	16.8	0.5	12.78	.08	36.2	1.7
June 9.0	51.69	.15	41.3	0.5	51.40	.17	55.7	0.3	53.39	.18	13.0	0.8	11.06	.13	17.3	0.7	12.86	.12	34.5	1.8
19.0	51.84	.20	41.8	0.6	51.57	.21	55.4	0.2	53.57	.22	12.2	0.7	11.19	.18	18.0	0.8	12.98	.16	32.7	1.8
28.9	52.04	.22	42.4	0.7	51.78	.24	55.2	0.1	53.79	.27	11.5	0.5	11.37	.21	18.8	0.8	13.14	.19	30.9	1.9
July 8.9	52.26	.26	43.1	0.8	52.02	.28	55.1	0.1	54.06	.30	11.0	0.3	11.58	.24	19.6	0.9	13.33	.22	29.0	1.8
18.9	52.52	.27	43.9	0.9	52.30	.31	55.2	0.3	54.36	.33	10.7	0.1	11.82	.26	20.5	1.0	13.55	.24	27.2	1.7
28.9	52.79	.29	44.8	0.9	52.61	.32	55.5	0.4	54.69	.35	10.6	0.1	12.08	.28	21.5	0.9	13.79	.26	25.5	1.5
Aug. 7.8	53.08	.30	45.7	0.9	52.93	.33	55.9	0.4	55.04	.36	10.7	0.2	12.36	.29	22.4	0.8	14.05	.27	24.0	1.4
17.8	53.38	.30	46.6	0.8	53.26	.34	56.3	0.6	55.40	.38	10.9	0.4	12.65	.30	23.2	0.8	14.32	.28	22.6	1.1
27.8	53.68	.31	47.4	0.7	53.60	.35	56.9	0.6	55.78	.37	11.3	0.5	12.95	.30	24.0	0.7	14.60	.28	21.5	0.8
Sept. 6.8	53.99	.30	48.1	0.6	53.95	.33	57.5	0.7	56.15	.38	11.8	0.7	13.25	.29	24.7	0.6	14.88	.28	20.7	0.4
16.7	54.29	.29	48.7	0.6	54.28	.33	58.2	0.7	56.53	.36	12.5	0.7	13.54	.29	25.3	0.4	15.16	.28	20.3	0.1
26.7	54.58	.28	49.3	0.4	54.61	.32	58.9	0.8	56.89	.36	13.2	0.9	13.83	.28	25.7	0.2	15.44	.27	20.2	0.2
Oct. 6.7	54.86	.27	49.7	0.3	54.93	.31	59.7	0.7	57.25	.33	14.1	1.0	14.11	.27	25.9	0.1	15.71	.25	20.4	0.5
16.6	55.13	.24	50.0	0.2	55.24	.28	60.4	0.8	57.58	.32	15.1	1.0	14.38	.26	26.0	0.0	15.96	.24	20.9	0.9
26.6	55.37	.23	50.2	0.1	55.52	.26	61.2	0.8	57.90	.29	16.1	1.2	14.64	.23	26.0	0.1	16.20	.22	21.8	1.1
Nov. 5.6	55.60	.20	50.3	0.1	55.78	.23	62.0	0.8	58.19	.26	17.3	1.2	14.87	.20	25.9	0.2	16.42	.19	22.9	1.3
15.6	55.80	.17	50.4	0.0	56.01	.19	62.8	0.9	58.45	.22	18.5	1.2	15.07	.18	25.7	0.3	16.61	.17	24.2	1.5
25.5	55.97	.13	50.4	0.1	56.20	.16	63.7	0.8	58.67	.17	19.7	1.3	15.25	.15	25.4	0.3	16.78	.13	25.7	1.5
Dec. 5.5	56.10	.10	50.3	0.0	56.36	.11	64.5	0.8	58.84	.13	21.0	1.3	15.40	.11	25.1	0.3	16.91	.10	27.2	1.5
15.5	56.20	.05	50.3	0.1	56.47	.07	65.3	0.8	58.97	.07	22.3	1.3	15.51	.06	24.8	0.3	17.01	.05	28.7	1.5
25.5	56.25	.01	50.2	0.1	56.54	.01	66.1	0.8	59.04	.02	23.6	1.2	15.57	.02	24.5	0.2	17.06	.01	30.2	1.4
35.4	56.26		50.1		56.55		66.9		59.06		24.8		15.59		24.3		17.07		31.6	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Aurigæ. (*Capella.*)				β Orionis. (*Rigel.*)				τ Orionis.				β Tauri.				χ Aurigæ.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	5 9		+45 53		5 10		− 8 18		5 13		− 6 56		5 20		+28 31		5 26		+32 7	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.4	45.64	.01	66.6	1.4	1.87	.01	46.4	1.5	3.19	.01	54.9	1.4	21.68	.02	36.3	0.4	37.32	.02	16.4	0.7
10.4	45.63	.07	68.0	1.3	1.86	.06	47.9	1.3	3.18	.05	56.3	1.3	21.70	.04	36.7	0.5	37.34	.03	17.1	0.7
20.4	45.56	.13	69.3	1.1	1.80	.09	49.2	1.1	3.13	.09	57.6	1.1	21.66	.09	37.2	0.4	37.31	.09	17.8	0.6
30.4	45.43	.18	70.4	0.9	1.71	.13	50.3	0.9	3.04	.13	58.7	0.9	21.57	.13	37.6	0.3	37.22	.13	18.4	0.4
Feb. 9.3	45.25	.22	71.3	0.6	1.58	.16	51.2	0.7	2.91	.15	59.6	0.6	21.44	.16	37.9	0.2	37.09	.17	18.8	0.4
19.3	45.03	.25	71.9	0.3	1.42	.18	51.9	0.4	2.76	.17	60.2	0.4	21.28	.19	38.1	0.1	36.92	.19	19.2	0.2
Mar. 1.3	44.78	.26	72.2	0.0	1.24	.18	52.3	0.1	2.59	.19	60.6	0.1	21.09	.20	38.2	0.0	36.73	.21	19.4	0.1
11.3	44.52	.27	72.2	0.3	1.06	.19	52.4	0.1	2.40	.19	60.7	0.1	20.89	.21	38.2	0.1	36.52	.21	19.5	0.1
21.2	44.25	.25	71.9	0.6	0.87	.18	52.3	0.4	2.21	.18	60.6	0.3	20.68	.19	38.1	0.2	36.31	.21	19.4	0.2
31.2	44.00	.22	71.3	0.8	0.69	.16	51.9	0.6	2.03	.16	60.3	0.6	20.49	.18	37.9	0.4	36.10	.18	19.2	0.4
Apr. 10.2	43.78	.18	70.5	1.1	0.53	.13	51.3	0.9	1.87	.13	59.7	0.8	20.31	.14	37.5	0.4	35.92	.16	18.8	0.5
20.1	43.60	.13	69.4	1.2	0.40	.10	50.4	1.1	1.74	.10	58.9	1.1	20.17	.11	37.1	0.4	35.76	.11	18.3	0.6
30.1	43.47	.07	68.2	1.3	0.30	.06	49.3	1.3	1.64	.06	57.8	1.2	20.06	.06	36.7	0.4	35.65	.07	17.7	0.6
May 10.1	43.40	.01	66.9	1.3	0.24	.02	48.0	1.5	1.58	.02	56.6	1.4	20.00	.01	36.3	0.5	35.58	.02	17.1	0.6
20.1	43.39	.05	65.6	1.3	0.22	.03	46.5	1.7	1.56	.03	55.2	1.7	19.99	.04	35.8	0.3	35.56	.03	16.5	0.5
30.0	43.44	.11	64.3	1.3	0.25	.07	44.8	1.9	1.59	.07	53.5	1.7	20.03	.08	35.5	0.3	35.59	.08	16.0	0.5
June 9.0	43.55	.16	63.0	1.1	0.32	.11	42.9	1.9	1.66	.11	51.8	1.9	20.11	.13	35.2	0.2	35.67	.13	15.5	0.4
19.0	43.71	.22	61.9	1.0	0.43	.15	41.0	2.0	1.77	.14	49.9	1.9	20.24	.18	35.0	0.1	35.80	.17	15.1	0.3
29.0	43.93	.27	60.9	0.9	0.58	.18	39.0	2.0	1.91	.18	48.0	1.9	20.42	.21	34.9	0.1	35.97	.22	14.8	0.2
July 8.9	44.20	.31	60.0	0.7	0.76	.21	37.0	1.9	2.09	.21	46.1	1.9	20.63	.25	35.0	0.1	36.19	.25	14.6	0.1
18.9	44.51	.34	59.3	0.4	0.97	.24	35.1	1.8	2.30	.24	44.2	1.7	20.88	.27	35.1	0.2	36.44	.27	14.5	0.0
28.9	44.85	.37	58.9	0.3	1.21	.25	33.3	1.7	2.54	.25	42.5	1.6	21.15	.29	35.3	0.3	36.71	.30	14.5	0.1
Aug. 7.8	45.22	.39	58.6	0.1	1.46	.27	31.6	1.4	2.79	.27	40.9	1.4	21.44	.31	35.6	0.4	37.01	.32	14.6	0.2
17.8	45.61	.40	58.5	0.2	1.73	.28	30.2	1.1	3.06	.28	39.5	1.1	21.75	.32	36.0	0.4	37.33	.33	14.8	0.3
27.8	46.01	.40	58.7	0.3	2.01	.28	29.1	0.8	3.34	.28	38.4	0.8	22.07	.33	36.4	0.4	37.66	.33	15.1	0.3
Sept. 6.8	46.41	.41	59.0	0.5	2.29	.29	28.3	0.4	3.62	.28	37.6	0.5	22.40	.32	36.8	0.4	37.99	.34	15.4	0.3
16.7	46.82	.40	59.5	0.6	2.58	.27	27.9	0.1	3.90	.28	37.1	0.1	22.72	.33	37.2	0.4	38.33	.34	15.7	0.4
26.7	47.22	.39	60.1	0.8	2.85	.27	27.8	0.3	4.18	.27	37.0	0.3	23.05	.31	37.6	0.4	38.67	.33	16.1	0.4
Oct. 6.7	47.61	.37	60.9	0.9	3.12	.26	28.1	0.6	4.45	.26	37.3	0.6	23.36	.31	38.0	0.3	39.00	.32	16.5	0.4
16.7	47.98	.35	61.8	1.1	3.38	.24	28.7	1.0	4.71	.25	37.9	0.9	23.67	.29	38.3	0.4	39.32	.31	16.9	0.5
26.6	48.33	.33	62.9	1.3	3.62	.23	29.7	1.2	4.96	.22	38.8	1.2	23.96	.28	38.7	0.4	39.63	.28	17.4	0.5
Nov. 5.6	48.66	.29	64.2	1.3	3.85	.20	30.9	1.5	5.18	.20	40.0	1.4	24.24	.24	39.1	0.4	39.91	.27	17.9	0.5
15.6	48.95	.26	65.5	1.4	4.05	.17	32.4	1.6	5.38	.18	41.4	1.6	24.48	.22	39.5	0.4	40.18	.23	18.4	0.6
25.5	49.21	.20	66.9	1.5	4.22	.13	34.0	1.7	5.56	.14	43.0	1.6	24.70	.19	39.9	0.4	40.41	.20	19.0	0.6
Dec. 5.5	49.41	.15	68.4	1.6	4.35	.10	35.7	1.7	5.70	.10	44.6	1.7	24.89	.14	40.3	0.5	40.61	.15	19.6	0.6
15.5	49.56	.10	70.0	1.5	4.45	.06	37.4	1.7	5.80	.06	46.3	1.6	25.03	.10	40.8	0.4	40.76	.10	20.2	0.7
25.5	49.66	.03	71.5	1.5	4.51	.02	39.1	1.6	5.86	.02	47.9	1.5	25.13	.04	41.2	0.5	40.86	.06	20.9	0.7
35.4	49.69		73.0		4.53		40.7		5.88		49.4		25.17		41.7		40.92		21.6	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	Groombridge 966.				δ Orionis.				α Leporis.				ε Orionis.				Groombridge 944.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	5 27		+74 58		5 27		− 0 22		5 28		−17 53		5 31		− 1 15		5 31		+85 8	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.5	12.68	0.10	54.5	2.8	12.91	.01	15.7	1.2	35.87	.01	32.7	2.0	27.29	.01	51.2	1.3	59.04	0.44	62.0	3.2
10.4	12.58	0.26	57.3	2.6	12.92	.04	16.9	1.0	35.86	.06	34.7	1.8	27.30	.03	52.5	1.1	58.60	0.93	65.2	2.9
20.4	12.32	0.41	59.9	2.4	12.88	.07	17.9	0.9	35.80	.09	36.5	1.6	27.27	.08	53.6	0.9	57.67	1.39	68.1	2.7
30.4	11.91	0.55	62.3	1.9	12.81	.11	18.8	0.7	35.71	.13	38.1	1.2	27.19	.11	54.5	0.7	56.28	1.78	70.8	2.2
Feb. 9.3	11.36	0.66	64.2	1.4	12.70	.15	19.5	0.5	35.58	.17	39.3	0.9	27.08	.14	55.2	0.6	54.50	2.11	73.0	1.7
19.3	10.70	0.73	65.6	1.0	12.55	.17	20.0	0.3	35.41	.19	40.2	0.6	26.94	.17	55.8	0.3	52.39	2.34	74.7	1.1
Mar. 1.3	9.97	0.77	66.6	0.4	12.38	.18	20.3	0.2	35.22	.20	40.8	0.3	26.77	.18	56.1	0.2	50.05	2.46	75.8	0.6
11.3	9.20	0.78	67.0	0.1	12.20	.18	20.5	0.0	35.02	.20	41.1	0.1	26.59	.19	56.3	0.0	47.59	2.49	76.4	0.1
21.2	8.42	0.75	66.9	0.7	12.02	.18	20.5	0.2	34.82	.20	41.0	0.5	26.40	.18	56.3	0.2	45.10	2.41	76.3	0.7
31.2	7.67	0.68	66.2	1.1	11.84	.16	20.3	0.4	34.62	.18	40.5	0.7	26.22	.16	56.1	0.4	42.69	2.23	75.6	1.2
Apr. 10.2	6.99	0.60	65.1	1.6	11.68	.14	19.9	0.6	34.44	.15	39.8	1.1	26.06	.14	55.7	0.6	40.46	1.97	74.4	1.7
20.2	6.39	0.48	63.5	2.0	11.54	.10	19.3	0.7	34.29	.12	38.7	1.4	25.92	.10	55.1	0.8	38.49	1.63	72.7	2.1
30.1	5.91	0.34	61.5	2.3	11.44	.07	18.6	1.0	34.17	.09	37.3	1.6	25.82	.07	54.3	0.9	36.86	1.24	70.6	2.5
May 10.1	5.57	0.20	59.2	2.4	11.37	.03	17.6	1.1	34.08	.04	35.7	1.9	25.75	.03	53.4	1.2	35.62	0.81	68.1	2.7
20.1	5.37	0.04	56.8	2.6	11.34	.02	16.5	1.2	34.04	.00	33.8	2.0	25.72	.01	52.2	1.2	34.81	0.35	65.4	2.8
30.0	5.33	0.11	54.2	2.6	11.36	.06	15.3	1.4	34.04	.04	31.8	2.3	25.73	.06	51.0	1.4	34.46	0.12	62.6	2.9
June 9.0	5.44	0.27	51.6	2.5	11.42	.10	13.9	1.4	34.08	.09	29.5	2.3	25.79	.09	49.6	1.5	34.58	0.57	59.7	2.9
19.0	5.71	0.41	49.1	2.5	11.52	.14	12.5	1.6	34.17	.13	27.2	2.4	25.88	.14	48.1	1.6	35.15	1.01	56.8	2.8
29.0	6.12	0.54	46.6	2.2	11.66	.18	10.9	1.5	34.30	.16	24.8	2.4	26.02	.17	46.5	1.6	36.16	1.43	54.0	2.6
July 8.9	6.66	0.65	44.4	2.0	11.84	.20	9.4	1.6	34.46	.19	22.4	2.3	26.19	.20	44.9	1.6	37.59	1.80	51.4	2.4
18.9	7.31	0.77	42.4	1.7	12.04	.23	7.8	1.5	34.65	22	20.1	2.1	26.39	.22	43.3	1.5	39.39	2.14	49.0	2.0
28.9	8.08	0.85	40.7	1.4	12.27	.25	6.3	1.3	34.87	.25	18.0	1.9	26.61	.25	41.8	1.4	41.53	2.42	47.0	1.7
Aug. 7.9	8.93	0.91	39.3	1.1	12.52	.26	5.0	1.2	35.12	.26	16.1	1.7	26.86	.26	40.4	1.2	43.95	2.65	45.3	1.3
17.8	9.84	0.97	38.2	0.6	12.78	.28	3.8	1.0	35.38	.28	14.4	1.3	27.12	.27	39.2	1.0	46.60	2.83	44.0	0.9
27.8	10.81	1.01	37.6	0.3	13.06	.28	2.8	0.7	35.66	.28	13.1	0.9	27.39	.28	38.2	0.7	49.43	2.96	43.1	0.5
Sept. 6.8	11.82	1.02	37.3	0.2	13.34	.28	2.1	0.5	35.94	.29	12.2	0.5	27.67	.28	37.5	0.5	52.39	3.02	42.6	0.0
16.7	12.84	1.02	37.5	0.5	13.62	.28	1.6	0.2	36.23	.29	11.7	0.0	27.95	.28	37.0	0.1	55.41	3.03	42.6	0.5
26.7	13.86	1.00	38.0	0.9	13.90	.27	1.4	0.2	36.52	.28	11.7	0.4	28.23	.28	36.9	0.1	58.44	2.98	43.1	0.9
Oct. 6.7	14.86	0.96	38.9	1.3	14.17	.27	1.6	0.4	36.80	.27	12.1	0.9	28.51	.27	37.0	0.5	61.42	2.87	44.0	1.4
16.7	15.82	0.91	40.2	1.7	14.44	.26	2.0	0.7	37.07	.26	13.0	1.2	28.78	.25	37.5	0.7	64.29	2.70	45.4	1.8
26.6	16.73	0.83	41.9	2.0	14.70	.24	2.7	1.0	37.33	.23	14.2	1.6	29.03	.24	38.2	1.0	66.99	2.45	47.2	2.2
Nov. 5.6	17.56	0.74	43.9	2.4	14.94	.21	3.7	1.1	37.56	.22	15.8	1.9	29.27	.22	39.2	1.2	69.44	2.15	49.4	2.5
15.6	18.30	0.63	46.3	2.6	15.15	.19	4.8	1.2	37.78	.18	17.7	2.1	29.49	.20	40.4	1.3	71.59	1.79	51.9	2.9
25.6	18.93	0.49	48.9	2.8	15.34	.16	6.0	1.4	37.96	.15	19.8	2.2	29.69	.16	41.7	1.4	73.38	1.37	54.8	3.1
Dec. 5.5	19.42	0.34	51.7	2.9	15.50	.13	7.4	1.3	38.11	.11	22.0	2.3	29.85	.12	43.1	1.4	74.75	0.90	57.9	3.2
15.5	19.76	0.18	54.6	3.0	15.63	.08	8.7	1.3	38.22	.07	24.3	2.3	29.97	.09	44.5	1.4	75.65	0.41	61.1	3.4
25.5	19.94	0.01	57.6	2.9	15.71	.04	10.0	1.2	38.29	.02	26.6	2.1	30.06	.04	45.9	1.2	76.06	0.10	64.5	3.2
35.4	19.95		60.5		15.75		11.2		38.31		28.7		30.10		47.1		75.96		67.7	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Columbæ.				κ Orionis.				δ Doradus.				ν Aurigæ.				α Orionis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 5 36		° ′ −34 7		h m 5 43		° ′ − 9 42		h m 5 44		° ′ −65 45		h m 5 44		° ′ +39 7		h m 5 50		° ′ + 7 23	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.5	15.82	.03	38.6	2.7	18.66	.01	19.8	1.7	39.32	.18	87.7	3.3	59.37	.04	11.1	1.1	5.65	.03	15.0	0.8
10.4	15.79	.08	41.3	2.4	18.67	.03	21.5	1.5	39.14	.28	91.0	2.9	59.41	.02	12.2	1.0	5.68	.01	14.2	0.7
20.4	15.71	.12	43.7	2.0	18.64	.07	23.0	1.3	38.86	.36	93.9	2.5	59.39	.08	13.2	1.0	5.67	.05	13.5	0.6
30.4	15.59	.17	45.7	1.7	18.57	.12	24.3	1.1	38.50	.44	96.4	2.1	59.31	.13	14.2	0.8	5.62	.10	12.9	0.4
Feb. 9.4	15.42	.20	47.4	1.3	18.45	.14	25.4	0.8	38.06	.49	98.5	1.6	59.18	.17	15.0	0.7	5.52	.13	12.5	0.3
19.3	15.22	.23	48.7	0.8	18.31	.17	26.2	0.5	37.57	.54	100.1	1.1	59.01	.21	15.7	0.5	5.39	.16	12.2	0.2
Mar. 1.3	14.99	.25	49.5	0.4	18.14	.19	26.7	0.3	37.03	.57	101.2	0.5	58.80	.23	16.2	0.3	5.23	.18	12.0	0.1
11.3	14.74	.25	49.9	0.1	17.95	.19	27.0	0.0	36.46	.57	101.7	0.1	58.57	.23	16.5	0.0	5.05	.18	11.9	0.0
21.2	14.49	.24	49.8	0.5	17.76	.19	27.0	0.3	35.89	.56	101.6	0.6	58.34	.24	16.5	0.1	4.87	.19	11.9	0.1
31.2	14.25	.22	49.3	1.0	17.57	.17	26.7	0.5	35.33	.53	101.0	1.1	58.10	.21	16.4	0.4	4.68	.16	12.0	0.2
Apr. 10.2	14.03	.20	48.3	1.4	17.40	.16	26.2	0.8	34.80	.50	99.9	1.6	57.89	.18	16.0	0.6	4.52	.15	12.2	0.3
20.2	13.83	.17	46.9	1.7	17.24	.12	25.4	1.0	34.30	.44	98.3	2.0	57.71	.14	15.4	0.8	4.37	.11	12.5	0.5
30.1	13.66	.13	45.2	2.1	17.12	.08	24.4	1.3	33.86	.37	96.3	2.5	57.57	.10	14.6	0.8	4.26	.08	13.0	0.5
May 10.1	13.53	.08	43.1	2.4	17.04	.05	23.1	1.5	33.49	.30	93.8	2.8	57.47	.04	13.8	0.9	4.18	.04	13.5	0.7
20.1	13.45	.03	40.7	2.7	16.99	.00	21.6	1.6	33.19	.21	91.0	3.1	57.43	.01	12.9	0.9	4.14	.00	14.2	0.8
30.1	13.42	.02	38.0	2.8	16.99	.04	20.0	1.8	32.98	.13	87.9	3.3	57.44	.06	12.0	0.9	4.14	.05	15.0	0.9
June 9.0	13.44	.06	35.2	2.9	17.03	.08	18.2	1.9	32.85	.03	84.6	3.5	57.50	.12	11.1	0.9	4.19	.08	15.9	0.9
19.0	13.50	.11	32.3	3.0	17.11	.11	16.3	2.0	32.82	.06	81.1	3.5	57.62	.16	10.2	0.8	4.27	.13	16.8	1.1
29.0	13.61	.15	29.3	3.0	17.22	.16	14.3	2.0	32.88	.15	77.6	3.4	57.78	.21	9.4	0.7	4.40	.16	17.9	1.1
July 8.9	13.76	.19	26.3	2.8	17.38	.18	12.3	1.9	33.03	.24	74.2	3.3	57.99	.25	8.7	0.6	4.56	.19	19.0	1.1
18.9	13.95	.22	23.5	2.6	17.56	.21	10.4	1.8	33.27	.31	70.9	3.1	58.24	.29	8.1	0.4	4.75	.22	20.1	1.0
28.9	14.17	.26	20.9	2.4	17.77	.24	8.6	1.7	33.58	.39	67.8	2.8	58.53	.31	7.7	0.3	4.97	.24	21.1	1.0
Aug. 7.9	14.43	.28	18.5	2.0	18.01	.25	6.9	1.5	33.97	.45	65.0	2.3	58.84	.33	7.4	0.2	5.21	.25	22.1	0.9
17.8	14.71	.29	16.5	1.5	18.26	.27	5.4	1.1	34.42	.50	62.7	1.8	59.17	.35	7.2	0.1	5.46	.27	23.0	0.8
27.8	15.00	.31	15.0	1.1	18.53	.28	4.3	0.9	34.92	.54	60.9	1.2	59.52	.36	7.1	0.0	5.73	.28	23.8	0.5
Sept. 6.8	15.31	.31	13.9	0.6	18.81	.28	3.4	0.5	35.46	.56	59.7	0.6	59.88	.36	7.1	0.1	6.01	.29	24.3	0.4
16.8	15.62	.32	13.3	0.1	19.09	.28	2.9	0.1	36.02	.56	59.1	0.0	60.24	.37	7.2	0.2	6.30	.29	24.7	0.1
26.7	15.94	.31	13.4	0.6	19.37	.28	2.8	0.3	36.58	.56	59.1	0.7	60.61	.37	7.4	0.3	6.59	.29	24.8	0.1
Oct. 6.7	16.25	.30	14.0	1.1	19.65	.27	3.1	0.7	37.14	.53	59.8	1.3	60.98	.35	7.7	0.5	6.88	.28	24.7	0.3
16.7	16.55	.28	15.1	1.6	19.92	.26	3.8	1.0	37.67	.49	61.1	1.9	61.33	.35	8.2	0.5	7.16	.27	24.4	0.5
26.6	16.83	.26	16.7	2.1	20.18	.25	4.8	1.3	38.16	.44	63.0	2.4	61.68	.33	8.7	0.6	7.43	.26	23.9	0.7
Nov. 5.6	17.09	.23	18.8	2.4	20.43	.23	6.1	1.6	38.60	.36	65.4	2.9	62.01	.30	9.3	0.7	7.69	.24	23.2	0.8
15.6	17.32	.19	21.2	2.7	20.66	.20	7.7	1.7	38.96	.28	68.3	3.3	62.31	.27	10.0	0.9	7.93	.21	22.4	0.9
25.6	17.51	.15	23.9	2.9	20.86	.16	9.4	1.9	39.24	.18	71.6	3.4	62.58	.23	10.9	0.9	8.14	.19	21.5	1.0
Dec. 5.5	17.66	.11	26.8	3.0	21.02	.13	11.3	1.9	39.42	.09	75.0	3.5	62.81	.19	11.8	1.0	8.33	.15	20.5	0.9
15.5	17.77	.06	29.8	2.9	21.15	.09	13.2	1.8	39.51	.01	78.5	3.5	63.00	.13	12.8	1.1	8.48	.11	19.6	0.9
25.5	17.83	.00	32.7	2.8	21.24	.05	15.0	1.8	39.50	.12	82.0	3.4	63.13	.08	13.9	1.1	8.59	.07	18.7	0.9
35.5	17.83		35.5		21.29		16.8		39.38		85.4		63.21		15.0		8.66		17.8	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Aurigæ.				θ Aurigæ.				ν Orionis.				22 Camelop. (H.).				η Geminorum.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.	
	h m 5 52		° ′ +44 56		h m 5 53		° ′ +37 12		h m 6 2		° ′ +14 46		h m 6 8		° ′ +69 20		h m 6 9		° ′ +22 31	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.5	39.06	.05	12.3	1.4	19.54	.05	16.6	1.0	13.02	.05	40.0	0.4	31.86	.07	67.5	2.7	12.97	.06	56.1	0.1
10.4	39.11	.02	13.7	1.4	19.59	.01	17.6	1.0	13.07	.00	39.6	0.3	31.93	.06	70.2	2.6	13.03	.01	56.2	0.2
20.4	39.09	.08	15.1	1.3	19.58	.06	18.6	0.9	13.07	.04	39.3	0.2	31.87	.19	72.8	2.4	13.04	.04	56.4	0.2
30.4	39.01	.14	16.4	1.1	19.52	.12	19.5	0.8	13.03	.09	39.1	0.1	31.68	.30	75.2	2.1	13.00	.08	56.6	0.2
Feb. 9.4	38.87	.19	17.5	0.9	19.40	.16	20.3	0.7	12.94	.13	39.0	0.1	31.38	.40	77.3	1.8	12.92	.13	56.8	0.2
19.3	38.68	.22	18.4	0.7	19.24	.20	21.0	0.5	12.81	.16	38.9	0.0	30.98	.47	79.1	1.3	12.79	.16	57.0	0.2
Mar. 1.3	38.46	.25	19.1	0.4	19.04	.22	21.5	0.3	12.65	.17	38.9	0.0	30.51	.53	80.4	0.9	12.63	.18	57.2	0.2
11.3	38.21	.26	19.5	0.1	18.82	.23	21.8	0.1	12.48	.19	38.9	0.1	29.98	.56	81.3	0.4	12.45	.20	57.4	0.1
21.3	37.95	.26	19.6	0.1	18.59	.22	21.9	0.1	12.29	.19	39.0	0.1	29.42	.55	81.7	0.1	12.25	.19	57.5	0.1
31.2	37.69	.24	19.5	0.5	18.37	.21	21.8	0.3	12.10	.17	39.1	0.1	28.87	.53	81.6	0.6	12.06	.18	57.6	0.0
Apr. 10.2	37.45	.20	19.0	0.6	18.16	.18	21.5	0.5	11.93	.15	39.2	0.1	28.34	.48	81.0	1.0	11.88	.17	57.6	0.0
20.2	37.25	.17	18.4	0.9	17.98	.15	21.0	0.6	11.78	.12	39.3	0.2	27.86	.40	80.0	1.5	11.71	.13	57.6	0.1
30.1	37.08	.12	17.5	1.1	17.83	.10	20.4	0.7	11.66	.09	39.5	0.2	27.46	.32	78.5	1.8	11.58	.09	57.5	0.0
May 10.1	36.96	.06	16.4	1.1	17.73	.05	19.7	0.8	11.57	.05	39.7	0.3	27.14	.22	76.7	2.0	11.49	.05	57.5	0.1
20.1	36.90	.00	15.3	1.2	17.68	.01	18.9	0.8	11.52	.00	40.0	0.4	26.92	.11	74.7	2.3	11.44	.01	57.4	0.0
30.1	36.90	.06	14.1	1.3	17.69	.05	18.1	0.9	11.52	.04	40.4	0.5	26.81	.00	72.4	2.3	11.43	.03	57.4	0.0
June 9.0	36.96	.11	12.8	1.2	17.74	.11	17.2	0.7	11.56	.08	40.9	0.5	26.81	.12	70.1	2.4	11.46	.08	57.4	0.1
19.0	37.07	.16	11.6	1.1	17.85	.15	16.5	0.7	11.64	.12	41.4	0.6	26.93	.22	67.7	2.4	11.54	.12	57.5	0.0
29.0	37.23	.22	10.5	1.1	18.00	.20	15.8	0.7	11.76	.15	42.0	0.6	27.15	.32	65.3	2.3	11.66	.16	57.5	0.2
July 9.0	37.45	.26	9.4	0.9	18.20	.23	15.1	0.5	11.91	.19	42.6	0.7	27.47	.42	63.0	2.2	11.82	.19	57.7	0.2
18.9	37.71	.30	8.5	0.8	18.43	.27	14.6	0.4	12.10	.22	43.3	0.6	27.89	.50	60.8	1.9	12.01	.22	57.9	0.2
28.9	38.01	.33	7.7	0.6	18.70	.30	14.2	0.3	12.32	.24	43.9	0.6	28.39	.57	58.9	1.7	12.23	.25	58.1	0.3
Aug. 7.9	38.34	.35	7.1	0.5	19.00	.32	13.9	0.3	12.56	.26	44.5	0.6	28.96	.64	57.2	1.5	12.48	.26	58.4	0.2
17.8	38.69	.37	6.6	0.3	19.32	.33	13.6	0.1	12.82	.27	45.1	0.5	29.60	.69	55.7	1.2	12.74	.29	58.6	0.2
27.8	39.06	.39	6.3	0.2	19.65	.35	13.5	0.0	13.09	.29	45.6	0.3	30.29	.72	54.5	0.8	13.03	.30	58.8	0.1
Sept. 6.8	39.45	.40	6.1	0.0	20.00	.36	13.5	0.0	13.38	.29	45.9	0.2	31.01	.75	53.7	0.5	13.33	.30	58.9	0.1
16.8	39.85	.40	6.1	0.1	20.36	.36	13.5	0.1	13.67	.30	46.1	0.1	31.76	.77	53.2	0.1	13.63	.31	59.0	0.0
26.7	40.25	.40	6.2	0.3	20.72	.36	13.6	0.2	13.97	.29	46.2	0.0	32.53	.77	53.1	0.3	13.94	.31	59.0	0.1
Oct. 6.7	40.65	.39	6.5	0.4	21.08	.35	13.8	0.3	14.26	.30	46.2	0.3	33.30	.76	53.4	0.6	14.25	.32	58.9	0.1
16.7	41.04	.38	6.9	0.6	21.43	.34	14.1	0.4	14.56	.29	45.9	0.3	34.06	.74	54.0	1.0	14.57	.30	58.8	0.2
26.7	41.42	.37	7.5	0.8	21.77	.33	14.5	0.5	14.85	.27	45.6	0.5	34.80	.70	55.0	1.3	14.87	.29	58.6	0.2
Nov. 5.6	41.79	.33	8.3	0.9	22.10	.30	15.0	0.5	15.12	.26	45.1	0.5	35.50	.64	56.3	1.7	15.16	.28	58.4	0.2
15.6	42.12	.30	9.2	1.1	22.40	.27	15.5	0.7	15.38	.23	44.6	0.6	36.14	.58	58.0	2.0	15.44	.25	58.2	0.2
25.6	42.42	.26	10.3	1.2	22.67	.24	16.2	0.8	15.61	.21	44.0	0.6	36.72	.49	60.0	2.2	15.69	.22	58.0	0.2
Dec. 5.5	42.68	.21	11.5	1.3	22.91	.20	17.0	0.8	15.82	.17	43.4	0.5	37.21	.38	62.2	2.5	15.91	.19	57.8	0.1
15.5	42.89	.16	12.8	1.4	23.11	.14	17.8	1.0	15.99	.13	42.9	0.5	37.59	.28	64.7	2.6	16.10	.14	57.7	0.0
25.5	43.05	.09	14.2	1.5	23.25	.09	18.8	1.0	16.12	.08	42.4	0.4	37.87	.15	67.3	2.7	16.24	.10	57.7	0.0
35.5	43.14		15.7		23.34		19.8		16.20		42.0		38.02		70.0		16.34		57.7	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	μ Geminorum.				ψ′ Aurigæ.				α Argûs. (*Canopus.*)				ν Geminorum.				γ Geminorum.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 6 17		° ′ +22 33		h m 6 17		° ′ +49 19		h m 6 21		° ′ −52 38		h m 6 23		° ′ +20 16		h m 6 32		° ′ +16 28	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.5	17.17	.07	36.2	0.1	40.75	.09	64.2	1.7	53.95	.03	48.4	3.4	23.62	.08	11.3	0.1	17.62	.09	39.3	0.3
10.5	17.24	.02	36.3	0.1	40.84	.01	65.9	1.6	53.92	.10	51.8	3.1	23.70	.02	11.2	0.0	17.71	.03	39.0	0.2
20.4	17.26	.04	36.4	0.2	40.85	.06	67.5	1.6	53.82	.16	54.9	2.8	23.72	.03	11.2	0.1	17.74	.02	38.8	0.2
30.4	17.22	.08	36.6	0.3	40.79	.13	69.1	1.5	53.66	.22	57.7	2.5	23.69	.07	11.3	0.2	17.72	.07	38.6	0.0
Feb. 9.4	17.14	.12	36.9	0.2	40.66	.18	70.6	1.3	53.44	.28	60.2	2.0	23.62	.12	11.5	0.1	17.65	.11	38.6	0.0
19.4	17.02	.15	37.1	0.3	40.48	.23	71.9	1.0	53.16	.32	62.2	1.5	23.50	.15	11.6	0.2	17.54	.14	38.6	0.1
Mar. 1.3	16.87	.18	37.4	0.2	40.25	.27	72.9	0.7	52.84	.35	63.7	1.0	23.35	.17	11.8	0.2	17.40	.17	38.7	0.1
11.3	16.69	.20	37.6	0.1	39.98	.28	73.6	0.4	52.49	.36	64.7	0.5	23.18	.19	12.0	0.2	17.23	.18	38.8	0.2
21.3	16.49	.19	37.7	0.1	39.70	.28	74.0	0.0	52.13	.36	65.2	0.1	22.99	.19	12.2	0.1	17.05	.19	39.0	0.2
31.2	16.30	.19	37.8	0.1	39.42	.27	74.0	0.2	51.77	.35	65.1	0.5	22.80	.19	12.3	0.1	16.86	.18	39.2	0.1
Apr. 10.2	16.11	.16	37.9	0.0	39.15	.24	73.8	0.6	51.42	.34	64.6	1.1	22.61	.16	12.4	0.1	16.68	.16	39.3	0.2
20.2	15.95	.13	37.9	0.0	38.91	.21	73.2	0.8	51.08	.30	63.5	1.6	22.45	.14	12.5	0.0	16.52	.14	39.5	0.2
30.2	15.82	.10	37.9	0.1	38.70	.15	72.4	1.1	50.78	.26	61.9	1.9	22.31	.10	12.5	0.1	16.38	.11	39.7	0.2
May 10.1	15.72	.06	37.8	0.1	38.55	.10	71.3	1.3	50.52	.20	60.0	2.4	22.21	.06	12.6	0.1	16.27	.06	39.9	0.2
20.1	15.66	.02	37.7	0.0	38.45	.04	70.0	1.3	50.32	.16	57.6	2.7	22.15	.02	12.7	0.0	16.21	.03	40.1	0.3
30.1	15.64	.03	37.7	0.0	38.41	.02	68.7	1.5	50.16	.10	54.9	3.0	22.13	.02	12.7	0.1	16.18	.01	40.4	0.3
June 9.1	15.67	.07	37.7	0.0	38.43	.09	67.2	1.4	50.06	.03	51.9	3.1	22.15	.06	12.8	0.2	16.19	.06	40.7	0.3
19.0	15.74	.11	37.7	0.1	38.52	.14	65.8	1.5	50.03	.03	48.8	3.3	22.21	.11	13.0	0.2	16.25	.09	41.0	0.4
29.0	15.85	.15	37.8	0.1	38.66	.19	64.3	1.4	50.06	.08	45.5	3.4	22.32	.14	13.2	0.2	16.34	.13	41.4	0.5
July 9.0	16.00	.18	37.9	0.2	38.85	.25	62.9	1.3	50.14	.14	42.1	3.3	22.46	.17	13.4	0.3	16.47	.16	41.9	0.4
18.9	16.18	.22	38.1	0.2	39.10	.29	61.6	1.2	50.28	.20	38.8	3.1	22.63	.21	13.7	0.3	16.63	.19	42.3	0.4
28.9	16.40	.24	38.3	0.1	39.39	.33	60.4	1.0	50.48	.25	35.7	2.9	22.84	.23	14.0	0.2	16.82	.22	42.7	0.4
Aug. 7.9	16.64	.26	38.4	0.2	39.72	.36	59.4	0.9	50.73	.29	32.8	2.5	23.07	.26	14.2	0.3	17.04	.24	43.1	0.4
17.9	16.90	.28	38.6	0.1	40.08	.38	58.5	0.8	51.02	.34	30.3	2.1	23.33	.27	14.5	0.1	17.28	.26	43.5	0.3
27.8	17.18	.30	38.7	0.1	40.46	.41	57.7	0.5	51.36	.36	28.2	1.6	23.60	.29	14.6	0.1	17.54	.28	43.8	0.1
Sept. 6.8	17.48	.30	38.8	0.1	40.87	.42	57.2	0.4	51.72	.39	26.6	1.0	23.89	.30	14.7	0.1	17.82	.29	43.9	0.0
16.8	17.78	.31	38.9	0.1	41.29	.44	56.8	0.2	52.11	.40	25.6	0.3	24.19	.30	14.8	0.1	18.11	.30	43.9	0.1
26.8	18.09	.32	38.8	0.1	41.73	.43	56.6	0.0	52.51	.40	25.3	0.2	24.49	.31	14.7	0.2	18.41	.30	43.8	0.2
Oct. 6.7	18.41	.31	38.7	0.2	42.16	.44	56.6	0.2	52.91	.40	25.5	0.9	24.80	.31	14.5	0.3	18.71	.30	43.6	0.4
16.7	18.72	.31	38.5	0.3	42.60	.42	56.8	0.4	53.31	.39	26.4	1.5	25.11	.30	14.2	0.3	19.01	.31	43.2	0.4
26.7	19.03	.30	38.2	0.2	43.02	.41	57.2	0.6	53.70	.36	27.9	2.1	25.41	.30	13.9	0.4	19.32	.29	42.8	0.6
Nov. 5.6	19.33	.28	38.0	0.3	43.43	.39	57.8	0.9	54.06	.32	30.0	2.5	25.71	.28	13.5	0.4	19.61	.28	42.2	0.6
15.6	19.61	.26	37.7	0.3	43.82	.35	58.7	1.1	54.38	.28	32.5	3.0	25.99	.26	13.1	0.4	19.89	.26	41.6	0.7
25.6	19.87	.23	37.4	0.2	44.17	.31	59.8	1.2	54.66	.22	35.5	3.3	26.25	.23	12.7	0.4	20.15	.23	40.9	0.6
Dec. 5.6	20.10	.19	37.2	0.1	44.48	.26	61.0	1.4	54.88	.16	38.8	3.4	26.48	.20	12.3	0.3	20.38	.20	40.3	0.6
15.5	20.29	.16	37.1	0.1	44.74	.20	62.4	1.6	55.04	.10	42.2	3.5	26.68	.16	12.0	0.2	20.58	.16	39.7	0.5
25.5	20.45	.10	37.0	0.0	44.94	.13	64.0	1.7	55.14	.01	45.7	3.4	26.84	.10	11.8	0.1	20.74	.12	39.2	0.4
35.5	20.55		37.0		45.07		65.7		55.15		49.1		26.94		11.7		20.86		38.8	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*ε* Geminorum.				ψ^{6} Aurigæ.				*α* Canis Majoris. (*Sirius.*)				*θ* Geminorum.				*ζ* Mensæ.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m 6 38 s		° ′ +25 13 ″		h m 6 39 s		° ′ +43 40 ″		h m 6 40 s		° ′ −16 35 ″		h m 6 46 s		° ′ +34 4 ″		h m 6 47 s		° ′ −80 42 ″	
Jan. 0.5	9.68	.10	20.5	0.2	58.91	.11	9.2	1.3	61.17	.06	20.2	2.3	36.47	.11	21.8	0.7	62.92	0.28	59.9	3.5
10.5	9.78	.04	20.7	0.3	59.02	.05	10.5	1.4	61.23	.02	22.5	2.1	36.58	.05	22.5	0.8	62.64	0.53	63.4	3.4
20.5	9.82	.02	21.0	0.4	59.07	.03	11.9	1.4	61.25	.04	24.6	1.9	36.63	.00	23.3	0.9	62.11	0.77	66.8	3.1
30.4	9.80	.06	21.4	0.4	59.04	.08	13.3	1.3	61.21	.08	26.5	1.6	36.63	.06	24.2	0.9	61.34	0.99	69.9	2.8
Feb. 9.4	9.74	.11	21.8	0.4	58.96	.14	14.6	1.2	61.13	.12	28.1	1.4	36.57	.12	25.1	0.8	60.35	1.16	72.7	2.4
19.4	9.63	.15	22.2	0.4	58.82	.19	15.8	1.1	61.01	.16	29.5	1.0	36.45	.15	25.9	0.8	59.19	1.31	75.1	1.9
Mar. 1.3	9.48	.17	22.6	0.4	58.63	.22	16.9	0.8	60.85	.18	30.5	0.7	36.30	.19	26.7	0.6	57.88	1.42	77.0	1.5
11.3	9.31	.19	23.0	0.3	58.41	.25	17.7	0.5	60.67	.20	31.2	0.4	36.11	.21	27.3	0.4	56.46	1.50	78.5	0.9
21.3	9.12	.20	23.3	0.2	58.16	.25	18.2	0.3	60.47	.20	31.6	0.0	35.90	.22	27.7	0.3	54.96	1.52	79.4	0.5
31.3	8.92	.19	23.5	0.1	57.91	.24	18.5	0.0	60.27	.19	31.6	0.3	35.68	.21	28.0	0.2	53.44	1.52	79.9	0.1
Apr. 10.2	8.73	.17	23.6	0.0	57.67	.23	18.5	0.3	60.08	.19	31.3	0.6	35.47	.19	28.2	0.1	51.92	1.48	79.8	0.6
20.2	8.56	.15	23.6	0.0	57.44	.19	18.2	0.5	59.89	.16	30.7	0.9	35.28	.17	28.1	0.2	50.44	1.40	79.2	1.1
30.2	8.41	.12	23.6	0.1	57.25	.15	17.7	0.7	59.73	.13	29.8	1.2	35.11	.13	27.9	0.4	49.04	1.29	78.1	1.6
May 10.1	8.29	.08	23.5	0.1	57.10	.11	17.0	0.9	59.60	.09	28.6	1.4	34.98	.09	27.5	0.5	47.75	1.15	76.5	2.0
20.1	8.21	.03	23.4	0.2	56.99	.05	16.1	1.0	59.51	.06	27.2	1.6	34.89	.05	27.0	0.5	46.60	1.00	74.5	2.4
30.1	8.18	.01	23.2	0.2	56.94	.00	15.1	1.1	59.45	.02	25.6	1.9	34.84	.00	26.5	0.6	45.60	0.80	72.1	2.7
June 9.1	8.19	.05	23.0	0.1	56.94	.05	14.0	1.2	59.43	.02	23.7	2.0	34.84	.04	25.9	0.7	44.80	0.60	69.4	3.0
19.0	8.24	.09	22.9	0.1	56.99	.11	12.8	1.2	59.45	.05	21.7	2.1	34.88	.09	25.2	0.7	44.20	0.38	66.4	3.2
29.0	8.33	.13	22.8	0.1	57.10	.15	11.6	1.2	59.50	.10	19.6	2.1	34.97	.14	24.5	0.6	43.82	0.15	63.2	3.3
July 9.0	8.46	.17	22.7	0.1	57.25	.20	10.4	1.1	59.60	.13	17.5	2.1	35.11	.17	23.9	0.7	43.67	0.08	59.9	3.3
19.0	8.63	.20	22.6	0.1	57.45	.24	9.3	1.1	59.73	.16	15.4	2.0	35.28	.21	23.2	0.6	43.75	0.31	56.6	3.2
28.9	8.83	.23	22.5	0.1	57.69	.28	8.2	1.0	59.89	.19	13.4	1.9	35.49	.24	22.6	0.5	44.06	0.54	53.4	3.0
Aug. 7.9	9.06	.26	22.4	0.1	57.97	.31	7.2	0.8	60.08	.21	11.5	1.7	35.73	.27	22.1	0.6	44.60	0.75	50.4	2.8
17.9	9.32	.27	22.3	0.1	58.28	.34	6.4	0.8	60.29	.24	9.8	1.4	36.00	.29	21.5	0.5	45.35	0.93	47.6	2.4
27.9	9.59	.29	22.2	0.1	58.62	.36	5.6	0.7	60.53	.25	8.4	1.0	36.29	.31	21.0	0.4	46.28	1.10	45.2	1.9
Sept. 6.8	9.88	.31	22.1	0.2	58.98	.37	4.9	0.5	60.78	.27	7.4	0.6	36.60	.33	20.6	0.5	47.38	1.22	43.3	1.4
16.8	10.19	.31	21.9	0.2	59.35	.39	4.4	0.5	61.05	.28	6.8	0.2	36.93	.34	20.1	0.4	48.50	1.31	41.9	0.8
26.8	10.50	.32	21.7	0.3	59.74	.39	3.9	0.3	61.33	.29	6.6	0.2	37.27	.35	19.7	0.3	49.91	1.36	41.1	0.2
Oct. 6.7	10.82	.32	21.4	0.3	60.13	.40	3.6	0.1	61.62	.29	6.8	0.7	37.62	.35	19.4	0.3	51.27	1.35	40.9	0.5
16.7	11.14	.33	21.1	0.3	60.53	.40	3.5	0.0	61.91	.29	7.5	1.1	37.97	.35	19.1	0.3	52.62	1.30	41.4	1.1
26.7	11.47	.31	20.8	0.4	60.93	.39	3.5	0.2	62.20	.28	8.6	1.5	38.32	.35	18.8	0.1	53.92	1.20	42.5	1.7
Nov. 5.7	11.78	.30	20.4	0.3	61.32	.37	3.7	0.4	62.48	.26	10.1	1.8	38.67	.33	18.7	0.1	55.12	1.05	44.2	2.3
15.6	12.08	.28	20.1	0.2	61.69	.34	4.1	0.6	62.74	.24	11.9	2.1	39.00	.31	18.6	0.1	56.17	0.87	46.5	2.7
25.6	12.36	.26	19.9	0.2	62.03	.31	4.7	0.8	62.98	.22	14.0	2.3	39.31	.28	18.7	0.3	57.04	0.65	49.2	3.1
Dec. 5.6	12.62	.22	19.7	0.1	62.34	.27	5.5	1.0	63.20	.18	16.3	2.4	39.59	.25	19.0	0.4	57.69	0.40	52.3	3.4
15.6	12.84	.17	19.6	0.1	62.61	.21	6.5	1.2	63.38	.14	18.7	2.4	39.84	.20	19.4	0.5	58.09	0.14	55.7	3.5
25.5	13.01	.13	19.7	0.1	62.82	.15	7.7	1.2	63.52	.09	21.1	2.3	40.04	.15	19.9	0.7	58.23	0.12	59.2	3.5
35.5	13.14		19.8		62.97		8.9		63.61		23.4		40.19		20.6		58.11		62.7	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ε Canis Majoris.				ζ Geminorum.				δ Canis Majoris.				63 Aurigæ.				γ² Volantis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m 6 54		° ′ —28 50		h m 6 58		° ′ +20 42		h m 7 4		° ′ —26 14		h m 7 5		° ′ +39 28		h m 7 9		° ′ —70 20	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.5	57.03	.06	44.8	2.8	32.76	.11	22.5	0.2	35.20	.08	43.6	2.7	12.32	.14	18.8	1.0	37.32	.01	50.8	3.6
10.5	57.09	.01	47.6	2.7	32.87	.06	22.3	0.0	35.28	.02	46.3	2.6	12.46	.07	19.8	1.1	37.31	.14	54.4	3.6
20.5	57.10	.04	50.3	2.4	32.93	.01	22.3	0.1	35.30	.02	48.9	2.4	12.53	.02	20.9	1.2	37.17	.26	58.0	3.4
30.4	57.06	.09	52.7	2.1	32.94	.05	22.4	0.2	35.28	.08	51.3	2.1	12.55	.05	22.1	1.2	36.91	.38	61.4	3.0
Feb. 9.4	56.97	.14	54.8	1.9	32.89	.09	22.6	0.3	35.20	.12	53.4	1.8	12.50	.11	23.3	1.1	36.53	.47	64.4	2.7
19.4	56.83	.17	56.7	1.4	32.80	.13	22.9	0.3	35.08	.16	55.2	1.4	12.39	.15	24.4	1.1	36.06	.56	67.1	2.2
Mar. 1.4	56.66	.20	58.1	1.0	32.67	.16	23.2	0.3	34.92	.19	56.6	1.1	12.24	.19	25.5	0.8	35.50	.62	69.3	1.8
11.3	56.46	.22	59.1	0.6	32.51	.18	23.5	0.3	34.73	.21	57.7	0.6	12.05	.22	26.3	0.7	34.88	.66	71.1	1.3
21.3	56.24	.22	59.7	0.2	32.33	.19	23.8	0.3	34.52	.21	58.3	0.2	11.83	.23	27.0	0.5	34.22	.69	72.4	0.7
31.3	56.02	.22	59.9	0.2	32.14	.18	24.1	0.2	34.31	.22	58.5	0.1	11.60	.23	27.5	0.2	33.53	.70	73.1	0.2
Apr. 10.2	55.80	.21	59.7	0.6	31.96	.17	24.3	0.2	34.09	.20	58.4	0.5	11.37	.21	27.7	0.0	32.83	.68	73.3	0.3
20.2	55.59	.19	59.1	1.0	31.79	.15	24.5	0.1	33.89	.19	57.9	0.9	11.16	.19	27.7	0.2	32.15	.65	73.0	0.8
30.2	55.40	.17	58.1	1.4	31.64	.13	24.6	0.1	33.70	.16	57.0	1.2	10.97	.16	27.5	0.4	31.50	.60	72.2	1.4
May 10.2	55.23	.13	56.7	1.7	31.51	.09	24.7	0.1	33.54	.13	55.8	1.6	10.81	.12	27.1	0.6	30.90	.54	70.8	1.8
20.1	55.10	.09	55.0	2.0	31.42	.05	24.8	0.1	33.41	.09	54.2	1.9	10.69	.07	26.5	0.8	30.36	.46	69.0	2.3
30.1	55.01	.05	53.0	2.2	31.37	.00	24.9	0.1	33.32	.05	52.3	2.1	10.62	.02	25.7	0.8	29.90	.37	66.7	2.6
June 9.1	54.96	.01	50.8	2.4	31.37	.03	25.0	0.1	33.27	.02	50.2	2.2	10.60	.02	24.9	1.0	29.53	.28	64.1	2.9
19.1	54.95	.03	48.4	2.6	31.40	.07	25.1	0.1	33.25	.02	48.0	2.5	10.62	.08	23.9	1.0	29.25	.18	61.2	3.2
29.0	54.98	.07	45.8	2.6	31.47	.11	25.2	0.1	33.27	.07	45.5	2.5	10.70	.12	22.9	1.0	29.07	.08	58.0	3.3
July 9.0	55.05	.11	43.2	2.7	31.58	.14	25.3	0.1	33.34	.10	43.0	2.5	10.82	.16	21.9	1.0	28.99	.04	54.7	3.4
19.0	55.16	.15	40.5	2.5	31.72	.18	25.4	0.1	33.44	.14	40.5	2.5	10.98	.20	20.9	1.0	29.03	.14	51.3	3.3
29.0	55.31	.18	38.0	2.4	31.90	.20	25.5	0.0	33.58	.17	38.0	2.3	11.18	.24	19.9	0.9	29.17	.25	48.0	3.2
Aug. 7.9	55.49	.21	35.6	2.2	32.10	.23	25.5	0.1	33.75	.20	35.7	2.0	11.42	.26	19.0	0.9	29.42	.35	44.8	2.9
17.9	55.70	.23	33.4	1.8	32.33	.25	25.6	0.1	33.95	.22	33.7	1.8	11.68	.30	18.1	0.9	29.77	.44	41.9	2.6
27.9	55.93	.26	31.6	1.4	32.58	.27	25.5	0.1	34.17	.25	31.9	1.4	11.98	.32	17.2	0.8	30.21	.53	39.3	2.2
Sept. 6.8	56.19	.28	30.2	0.9	32.85	.28	25.4	0.3	34.42	.27	30.5	0.9	12.30	.34	16.4	0.7	30.74	.59	37.1	1.6
16.8	56.47	.30	29.3	0.5	33.13	.30	25.1	0.3	34.69	.29	29.6	0.5	12.64	.35	15.7	0.7	31.33	.64	35.5	1.0
26.8	56.77	.30	28.8	0.1	33.43	.31	24.8	0.4	34.98	.30	29.1	0.0	12.99	.37	15.0	0.6	31.97	.67	34.5	0.4
Oct. 6.8	57.07	.31	28.9	0.6	33.74	.31	24.4	0.5	35.28	.30	29.1	0.6	13.36	.38	14.4	0.5	32.64	.68	34.1	0.2
16.7	57.38	.31	29.5	1.1	34.05	.32	23.9	0.6	35.58	.31	29.7	1.1	13.74	.38	13.9	0.3	33.32	.68	34.3	1.0
26.7	57.69	30	30.6	1.6	34.37	.31	23.3	0.6	35.89	.30	30.8	1.5	14.12	.38	13.6	0.2	34.00	.64	35.3	1.5
Nov. 5.7	57.99	.29	32.2	2.1	34.68	.31	22.7	0.6	36.19	.29	32.3	1.9	14.50	.36	13.4	0.0	34.64	.59	36.8	2.2
15.7	58.28	.26	34.3	2.4	34.99	.28	22.1	0.6	36.48	.26	34.2	2.3	14.86	.35	13.4	0.2	35.23	.52	39.0	2.7
25.6	58.54	.23	36.7	2.7	35.27	.27	21.5	0.5	36.74	.24	36.5	2.6	15.21	.32	13.6	0.3	35.75	.42	41.7	3.0
Dec. 5.6	58.77	.19	39.4	2.8	35.54	.23	21.0	0.5	36.98	.20	39.1	2.8	15.53	.28	13.9	0.6	36.17	.31	44.7	3.4
15.6	58.96	.15	42.2	2.9	35.77	.19	20.5	0.3	37.18	.16	41.9	2.8	15.81	.23	14.5	0.7	36.48	.20	48.1	3.6
25.5	59.11	.10	45.1	2.9	35.96	.14	20.2	0.2	37.34	.12	44.7	2.8	16.04	.18	15.2	1.0	36.68	.07	51.7	3.7
35.5	59.21		48.0		36.10		20.0		37.46		47.5		16.22		16.2		36.75		55.4	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	25 Camelop. (H.).				δ Geminorum.				Piazzi vii, 67.				β Canis Minoris.				α^2 Geminorum. (*Castor.*)			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	7 11		+82 35		7 14		+22 9		7 21		+68 39		7 22		+ 8 28		7 28		+32 5	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.5	27.61	0.49	29.7	3.1	31.29	.13	12.4	0.1	8.39	.26	20.1	2.5	3.90	.13	37.0	1.0	36.90	.15	33.9	0.5
10.5	28.10	0.15	32.8	3.1	31.42	.07	12.3	0.1	8.65	.13	22.6	2.6	4.03	.07	36.0	0.8	37.05	.10	34.4	0.7
20.5	28.25	0.20	35.9	3.1	31.49	.03	12.4	0.2	8.78	.00	25.2	2.7	4.10	.03	35.2	0.7	37.15	.04	35.1	0.7
30.5	28.05	0.53	39.0	2.9	31.52	.03	12.6	0.2	8.78	.12	27.9	2.5	4.13	.03	34.5	0.5	37.19	.02	35.8	0.9
Feb. 9.4	27.52	0.84	41.9	2.7	31.49	.08	12.8	0.4	8.66	.24	30.4	2.4	4.10	.07	34.0	0.3	37.17	.07	36.7	0.9
19.4	26.68	1.10	44.6	2.3	31.41	.12	13.2	0.4	8.42	.34	32.8	2.0	4.03	.11	33.7	0.2	37.10	.12	37.6	0.8
Mar. 1.4	25.58	1.32	46.9	1.8	31.29	.15	13.6	0.4	8.08	.42	34.8	1.7	3.92	.14	33.5	0.0	36.98	.16	38.4	0.8
11.3	24.26	1.47	48.7	1.2	31.14	.18	14.0	0.4	7.66	.48	36.5	1.3	3.78	.16	33.5	0.1	36.82	.18	39.2	0.7
21.3	22.79	1.56	49.9	0.7	30.96	.18	14.4	0.4	7.18	.52	37.8	0.8	3.62	.18	33.6	0.2	36.64	.20	39.9	0.5
31.3	21.23	1.58	50.6	0.2	30.78	.19	14.8	0.3	6.66	.52	38.6	0.4	3.44	.17	33.8	0.2	36.44	.21	40.4	0.5
Apr. 10.3	19.65	1.53	50.8	0.5	30.59	.18	15.1	0.2	6.14	.51	39.0	0.2	3.27	.17	34.0	0.4	36.23	.20	40.9	0.2
20.2	18.12	1.42	50.3	1.0	30.41	.16	15.3	0.2	5.63	.47	38.8	0.6	3.10	.15	34.4	0.4	36.03	.18	41.1	0.1
30.2	16.70	1.27	49.3	1.5	30.25	.13	15.5	0.1	5.16	.42	38.2	1.1	2.95	.13	34.8	0.4	35.85	.15	41.2	0.1
May 10.2	15.43	1.06	47.8	1.9	30.12	.09	15.6	0.0	4.74	.34	37.1	1.5	2.82	.10	35.2	0.6	35.70	.12	41.1	0.2
20.2	14.37	0.82	45.9	2.3	30.03	.07	15.6	0.1	4.40	.26	35.6	1.8	2.72	.06	35.8	0.6	35.58	.08	40.9	0.4
30.1	13.55	0.55	43.6	2.6	29.96	.02	15.7	0.0	4.14	.16	33.8	2.1	2.66	.03	36.4	0.7	35.50	.04	40.5	0.5
June 9.1	13.00	0.28	41.0	2.8	29.94	.02	15.7	0.0	3.98	.06	31.7	2.2	2.63	.00	37.1	0.7	35.46	.01	40.0	0.5
19.1	12.72	0.01	38.2	2.9	29.96	.05	15.7	0.0	3.92	.03	29.5	2.5	2.63	.05	37.8	0.7	35.47	.04	39.5	0.6
29.0	12.73	0.30	35.3	3.0	30.01	.10	15.7	0.1	3.95	.14	27.0	2.5	2.68	.07	38.5	0.7	35.51	.09	38.9	0.6
July 9.0	13.03	0.57	32.3	2.9	30.11	.13	15.6	0.0	4.09	.23	24.5	2.5	2.75	.11	39.2	0.8	35.60	.12	38.3	0.7
19.0	13.60	0.84	29.4	2.9	30.24	.16	15.6	0.1	4.32	.33	22.0	2.4	2.86	.14	40.0	0.7	35.72	.16	37.6	0.7
29.0	14.44	1.08	26.5	2.7	30.40	.19	15.5	0.1	4.65	.40	19.6	2.4	3.00	.17	40.7	0.6	35.88	.20	36.9	0.7
Aug. 7.9	15.52	1.31	23.8	2.5	30.59	.22	15.4	0.1	5.05	.49	17.2	2.2	3.17	.20	41.3	0.5	36.08	.22	36.2	0.7
17.9	16.83	1.50	21.3	2.2	30.81	.24	15.3	0.2	5.54	.55	15.0	2.1	3.37	.21	41.8	0.4	36.30	.25	35.5	0.8
27.9	18.33	1.68	19.1	1.9	31.05	.26	15.1	0.3	6.09	.61	12.9	1.8	3.58	.24	42.2	0.2	36.55	.28	34.7	0.7
Sept. 6.9	20.01	1.82	17.2	1.6	31.31	.28	14.8	0.3	6.70	.66	11.1	1.5	3.82	.26	42.4	0.0	36.83	.30	34.0	0.8
16.8	21.83	1.92	15.6	1.2	31.59	.30	14.5	0.5	7.36	.70	9.6	1.2	4.08	.27	42.4	0.2	37.13	.32	33.2	0.7
26.8	23.75	2.00	14.4	0.7	31.89	.31	14.0	0.5	8.06	.73	8.4	0.9	4.35	.29	42.2	0.4	37.45	.33	32.5	0.8
Oct. 6.8	25.75	2.04	13.7	0.3	32.20	.32	13.5	0.6	8.79	.75	7.5	0.5	4.64	.29	41.8	0.7	37.78	.34	31.7	0.7
16.7	27.79	2.03	13.4	0.2	32.52	.32	12.9	0.7	9.54	.76	7.0	0.2	4.93	.30	41.1	0.8	38.12	.35	31.0	0.7
26.7	29.82	1.98	13.6	0.7	32.84	.32	12.2	0.7	10.30	.75	6.8	0.3	5.23	.30	40.3	1.0	38.47	.35	30.3	0.6
Nov. 5.7	31.80	1.89	14.3	1.1	33.16	.31	11.5	0.7	11.05	.73	7.1	0.7	5.53	.30	39.3	1.2	38.82	.35	29.7	0.5
15.7	33.69	1.75	15.4	1.6	33.47	.30	10.8	0.6	11.78	.69	7.8	1.0	5.83	.28	38.1	1.2	39.17	.34	29.2	0.4
25.6	35.44	1.55	17.0	2.1	33.77	.28	10.2	0.6	12.47	.62	8.8	1.5	6.11	.26	36.9	1.2	39.51	.31	28.8	0.1
Dec. 5.6	36.99	1.31	19.1	2.5	34.05	.25	9.6	0.4	13.09	.54	10.3	1.9	6.37	.24	35.7	1.2	39.82	.28	28.7	0.0
15.6	38.30	1.03	21.6	2.7	34.30	.20	9.2	0.4	13.63	.45	12.2	2.1	6.61	.19	34.5	1.2	40.10	.24	28.7	0.1
25.6	39.33	0.72	24.3	3.0	34.50	.17	8.8	0.1	14.08	.34	14.3	2.4	6.80	.16	33.3	1.1	40.34	.19	28.8	0.4
35.5	40.05		27.3		34.67		8.7		14.42		16.7		6.96		32.2		40.53		29.2	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*α* Canis Minoris. (*Procyon.*)				*β* Geminorum. (*Pollux.*)				*ϕ* Geminorum.				26 Lyncis.				Groombridge 1374.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.	
	h m 7 34		° ′ + 5 27		h m 7 39		° ′ +28 14		h m 7 47		° ′ +27 0		h m 7 47		° ′ +47 48		h m 7 48		° ′ +74 9	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.6	23.56	.14	49.7	1.2	34.55	.16	64.0	0.2	45.38	.17	25.3	0.1	53.11	.21	21.0	1.3	59.96	.41	59.7	2.6
10.5	23.70	.08	48.5	1.1	34.71	.11	64.2	0.3	45.55	.11	25.4	0.2	53.32	.14	22.3	1.5	60.37	.25	62.3	2.8
20.5	23.78	.03	47.4	0.9	34.82	.05	64.5	0.6	45.66	.06	25.6	0.5	53.46	.07	23.8	1.7	60.62	.07	65.1	2.9
30.5	23.81	.01	46.5	0.7	34.87	.01	65.1	0.6	45.72	.01	26.1	0.5	53.53	.01	25.5	1.7	60.69	.09	68.0	2.8
Feb. 9.4	23.80	.06	45.8	0.5	34.86	.06	65.7	0.7	45.73	.05	26.6	0.7	53.52	.07	27.2	1.7	60.60	.25	70.8	2.7
19.4	23.74	.11	45.3	0.3	34.80	.11	66.4	0.7	45.68	.10	27.3	0.7	53.45	.13	28.9	1.6	60.35	.39	73.5	2.4
Mar. 1.4	23.63	.13	45.0	0.2	34.69	.14	67.1	0.7	45.58	.14	28.0	0.7	53.32	.19	30.5	1.4	59.96	.51	75.9	2.1
11.4	23.50	.16	44.8	0.1	34.55	.17	67.8	0.7	45.44	.16	28.7	0.7	53.13	.23	31.9	1.2	59.45	.61	78.0	1.7
21.3	23.34	.17	44.7	0.1	34.38	.19	68.5	0.6	45.28	.18	29.4	0.6	52.90	.25	33.1	1.0	58.84	.67	79.7	1.2
31.3	23.17	.18	44.8	0.3	34.19	.20	69.1	0.4	45.10	.19	30.0	0.5	52.65	.26	34.1	0.6	58.17	.71	80.9	0.6
Apr. 10.3	22.99	.17	45.1	0.3	33.99	.19	69.5	0.3	44.91	.19	30.5	0.3	52.39	.26	34.7	0.3	57.46	.71	81.5	0.2
20.3	22.82	.15	45.4	0.4	33.80	.17	69.8	0.2	44.72	.17	30.8	0.3	52.13	.24	35.0	0.0	56.75	.67	81.7	0.4
30.2	22.67	.14	45.8	0.5	33.63	.15	70.0	0.1	44.55	.15	31.1	0.1	51.89	.21	35.0	0.3	56.08	.61	81.3	0.9
May 10.2	22.53	.10	46.3	0.6	33.48	.12	70.1	0.0	44.40	.12	31.2	0.0	51.68	.18	34.7	0.7	55.47	.54	80.4	1.4
20.2	22.43	.08	46.9	0.7	33.36	.09	70.1	0.2	44.28	.09	31.2	0.1	51.50	.13	34.0	0.8	54.93	.43	79.0	1.7
30.1	22.35	.04	47.6	0.8	33.27	.04	69.9	0.3	44.19	.05	31.1	0.2	51.37	.08	33.2	1.1	54.50	.32	77.3	2.1
June 9.1	22.31	.01	48.4	0.8	33.23	.01	69.6	0.3	44.14	.01	30.9	0.2	51.29	.04	32.1	1.3	54.18	.20	75.2	2.4
19.1	22.30	.03	49.2	0.8	33.22	.03	69.3	0.4	44.13	.02	30.7	0.3	51.25	.02	30.8	1.4	53.98	.07	72.8	2.6
29.0	22.33	.07	50.0	0.9	33.25	.07	68.9	0.4	44.15	.07	30.4	0.4	51.27	.07	29.4	1.6	53.91	.06	70.2	2.7
July 9.0	22.40	.09	50.9	0.8	33.32	.11	68.5	0.5	44.22	.10	30.0	0.4	51.34	.12	27.8	1.6	53.97	.18	67.5	2.8
19.0	22.49	.12	51.7	0.8	33.43	.14	68.0	0.5	44.32	.13	29.6	0.5	51.46	.17	26.2	1.6	54.15	.31	64.7	2.8
29.0	22.61	.16	52.5	0.8	33.57	.18	67.5	0.6	44.45	.17	29.1	0.5	51.63	.21	24.6	1.6	54.46	.43	61.9	2.8
Aug. 8.0	22.77	.18	53.3	0.6	33.75	.20	66.9	0.6	44.62	.19	28.6	0.6	51.84	.25	23.0	1.6	54.89	.54	59.1	2.6
17.9	22.95	.20	53.9	0.4	33.95	.24	66.3	0.6	44.81	.22	28.0	0.6	52.09	.29	21.4	1.6	55.43	.64	56.5	2.4
27.9	23.15	.23	54.3	0.3	34.19	.25	65.7	0.7	45.03	.25	27.4	0.7	52.38	.32	19.8	1.5	56.07	.73	54.1	2.3
Sept. 6.9	23.38	.25	54.6	0.0	34.44	.28	65.0	0.7	45.28	.28	26.7	0.7	52.70	.36	18.3	1.4	56.80	.81	51.8	2.0
16.8	23.63	.26	54.6	0.2	34.72	.30	64.3	0.8	45.56	.29	26.0	0.8	53.06	.38	16.9	1.3	57.61	.88	49.8	1.7
26.8	23.89	.28	54.4	0.4	35.02	.31	63.5	0.8	45.85	.30	25.2	0.9	53.44	.40	15.6	1.1	58.49	.93	48.1	1.3
Oct. 6.8	24.17	.29	54.0	0.7	35.33	.33	62.7	0.8	46.15	.33	24.3	0.9	53.84	.42	14.5	1.0	59.42	.97	46.8	0.9
16.8	24.46	.29	53.3	0.9	35.66	.34	61.9	0.8	46.48	.33	23.4	0.8	54.26	.43	13.5	0.7	60.39	.99	45.9	0.5
26.7	24.75	.30	52.4	1.2	36.00	.34	61.1	0.8	46.81	.34	22.6	0.9	54.69	.44	12.8	0.6	61.38	.99	45.4	0.1
Nov. 5.7	25.05	.30	51.2	1.3	36.34	.34	60.3	0.7	47.15	.34	21.7	0.8	55.13	.43	12.2	0.2	62.37	.97	45.3	0.4
15.7	25.35	.28	49.9	1.4	36.68	.33	59.6	0.6	47.49	.33	20.9	0.7	55.56	.42	12.0	0.0	63.34	.93	45.7	0.9
25.7	25.63	.27	48.5	1.4	37.01	.31	59.0	0.4	47.82	.31	20.2	0.6	55.98	.40	12.0	0.4	64.27	.86	46.6	1.3
Dec. 5.6	25.90	.24	47.1	1.5	37.32	.28	58.6	0.3	48.13	.29	19.6	0.4	56.38	.36	12.4	0.6	65.13	.77	47.9	1.7
15.6	26.14	.20	45.6	1.4	37.60	.24	58.3	0.1	48.42	.24	19.2	0.2	56.74	.31	13.0	0.9	65.90	.65	49.6	2.2
25.6	26.34	.17	44.2	1.3	37.84	.19	58.2	0.1	48.66	.21	19.0	0.0	57.05	.26	13.9	1.2	66.55	.51	51.8	2.4
35.5	26.51		42.9		38.03		58.3		48.87		19.0		57.31		15.1		67.06		54.2	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ω¹ Cancri.				3 Ursæ Maj. (H.).				15 Argûs (ρ.)				ζ¹ Cancri.				β Cancri.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination South.		Right Ascension.		Declination North.		Right Ascension.		Declination North.	
	h m 7 55		° ′ +25 38		h m 8 3		° ′ +68 44		h m 8 3		° ′ −24 1		h m 8 6		° ′ +17 55		h m 8 11		° ′ + 9 28	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.6	15.26	.18	52.8	0.0	29.64	.37	53.1	2.3	33.42	.15	61.3	2.8	49.88	.18	45.9	0.5	25.66	.17	25.2	1.1
10.5	15.44	.12	52.8	0.1	30.01	.24	55.4	2.5	33.57	.09	64.1	2.7	50.06	.13	45.4	0.4	25.83	.13	24.1	0.9
20.5	15.56	.07	52.9	0.3	30.25	.12	57.9	2.7	33.66	.04	66.8	2.6	50.19	.08	45.0	0.2	25.96	.07	23.2	0.7
30.5	15.63	.01	53.2	0.5	30.37	.02	60.6	2.7	33.70	.02	69.4	2.3	50.27	.02	44.8	0.0	26.03	.02	22.5	0.5
Feb. 9.5	15.64	.04	53.7	0.6	30.35	.13	63.3	2.6	33.68	.06	71.7	2.0	50.29	.03	44.8	0.2	26.05	.03	22.0	0.3
19.4	15.60	.09	54.3	0.7	30.22	.26	65.9	2.4	33.62	.11	73.7	1.7	50.26	.08	45.0	0.3	26.02	.07	21.7	0.2
Mar. 1.4	15.51	.13	55.0	0.7	29.96	.35	68.3	2.1	33.51	.14	75.4	1.4	50.18	.11	45.3	0.4	25.95	.10	21.5	0.0
11.4	15.38	.16	55.7	0.6	29.61	.42	70.4	1.7	33.37	.17	76.8	1.0	50.07	.15	45.7	0.4	25.85	.14	21.5	0.2
21.3	15.22	.18	56.3	0.6	29.19	.48	72.1	1.3	33.20	.19	77.8	0.7	49.92	.16	46.1	0.5	25.71	.16	21.7	0.2
31.3	15.04	.18	56.9	0.5	28.71	.51	73.4	0.9	33.01	.20	78.5	0.2	49.76	.17	46.6	0.4	25.55	.16	21.9	0.3
Apr. 10.3	14.86	.18	57.4	0.4	28.20	.52	74.3	0.4	32.81	.20	78.7	0.0	49.59	.17	47.0	0.4	25.39	.17	22.2	0.4
20.3	14.68	.17	57.8	0.3	27.68	.49	74.7	0.2	32.61	.19	78.7	0.5	49.42	.16	47.4	0.4	25.22	.16	22.6	0.5
30.2	14.51	.15	58.1	0.2	27.19	.46	74.5	0.6	32.42	.17	78.2	0.8	49.26	.15	47.8	0.4	25.06	.14	23.1	0.4
May 10.2	14.36	.13	58.3	0.1	26.73	.41	73.9	1.0	32.25	.15	77.4	1.1	49.11	.12	48.2	0.3	24.92	.12	23.5	0.6
20.2	14.23	.09	58.4	0.0	26.32	.33	72.9	1.5	32.10	.12	76.3	1.4	48.99	.09	48.5	0.3	24.80	.09	24.1	0.5
30.2	14.14	.06	58.4	0.1	25.99	.25	71.4	1.8	31.98	.09	74.9	1.6	48.90	.06	48.8	0.3	24.71	.06	24.6	0.6
June 9.1	14.08	.02	58.3	0.2	25.74	.16	69.6	2.1	31.89	.06	73.3	1.9	48.84	.03	49.1	0.2	24.65	.03	25.2	0.6
19.1	14.06	.02	58.1	0.2	25.58	.07	67.5	2.3	31.83	.02	71.4	2.1	48.81	.01	49.3	0.1	24.62	.00	25.8	0.6
29.1	14.08	.06	57.9	0.3	25.51	.03	65.2	2.5	31.81	.01	69.3	2.2	48.82	.05	49.4	0.1	24.62	.03	26.4	0.6
July 9.0	14.14	.09	57.6	0.4	25.54	.13	62.7	2.6	31.82	.04	67.1	2.3	48.87	.07	49.5	0.1	24.65	.07	27.0	0.5
19.0	14.23	.13	57.2	0.4	25.67	.21	60.1	2.7	31.86	.08	64.8	2.2	48.94	.11	49.6	0.0	24.72	.09	27.5	0.5
29.0	14.36	.16	56.8	0.5	25.88	.31	57.4	2.6	31.94	.11	62.6	2.2	49.05	.13	49.6	0.1	24.81	.13	28.0	0.4
Aug. 8.0	14.52	.18	56.3	0.5	26.19	.38	54.8	2.6	32.05	.15	60.4	2.0	49.18	.17	49.5	0.1	24.94	.15	28.4	0.3
17.9	14.70	.21	55.8	0.6	26.57	.46	52.2	2.5	32.20	.17	58.4	1.8	49.35	.19	49.4	0.3	25.09	.18	28.7	0.2
27.9	14.91	.24	55.2	0.7	27.03	.53	49.7	2.3	32.37	.21	56.6	1.5	49.54	.22	49.1	0.4	25.27	.20	28.9	0.1
Sept. 6.9	15.15	.27	54.5	0.7	27.56	.60	47.4	2.0	32.58	.23	55.1	1.1	49.76	.24	48.7	0.5	25.47	.23	28.8	0.2
16.9	15.42	.28	53.8	0.8	28.16	.65	45.4	1.9	32.81	.26	54.0	0.7	50.00	.26	48.2	0.7	25.70	.25	28.6	0.4
26.8	15.70	.31	53.0	0.9	28.81	.69	43.5	1.5	33.07	.27	53.3	0.2	50.26	.28	47.5	0.8	25.95	.27	28.2	0.6
Oct. 6.8	16.01	.31	52.1	0.9	29.50	.73	42.0	1.2	33.34	.30	53.1	0.3	50.54	.30	46.7	0.9	26.22	.29	27.6	0.8
16.8	16.32	.33	51.2	1.0	30.23	.75	40.8	0.8	33.64	.31	53.4	0.8	50.84	.32	45.8	1.0	26.51	.30	26.8	1.0
26.7	16.65	.34	50.2	0.9	30.98	.77	40.0	0.4	33.95	.31	54.2	1.3	51.16	.32	44.8	1.1	26.81	.31	25.8	1.2
Nov. 5.7	16.99	.34	49.3	0.9	31.75	.76	39.6	0.1	34.26	.31	55.5	1.7	51.48	.32	43.7	1.2	27.12	.31	24.6	1.3
15.7	17.33	.33	48.4	0.8	32.51	.73	39.7	0.5	34.57	.30	57.2	2.1	51.80	.32	42.5	1.1	27.43	.30	23.3	1.4
25.7	17.66	.31	47.6	0.7	33.24	.69	40.2	0.9	34.87	.28	59.3	2.4	52.12	.30	41.4	1.1	27.73	.30	21.9	1.4
Dec. 5.6	17.97	.29	46.9	0.6	33.93	.63	41.1	1.4	35.15	.26	61.7	2.6	52.42	.28	40.3	1.0	28.03	.27	20.5	1.4
15.6	18.26	.25	46.3	0.3	34.56	.54	42.5	1.8	35.41	.21	64.3	2.7	52.70	.25	39.3	0.8	28.30	.24	19.1	1.3
25.6	18.51	.21	46.0	0.1	35.10	.44	44.3	2.1	35.62	.18	67.0	2.8	52.95	.21	38.5	0.7	28.54	.20	17.8	1.2
35.6	18.72		45.9		35.54		46.4		35.80		69.8		53.16		37.8		28.74		16.6	

FIXED STARS, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	30 Monocerotis.				θ Chamæleontis.				η Cancri.				σ Hydræ.				γ Cancri.			
	Right Ascension.		Declination South.		Right Ascension.		Declination South.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	8 20		− 3 35		8 23		−77 10		8 27		+20 45		8 33		+ 3 40		8 37		+21 48	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.6	58.51	.17	62.8	1.8	35.45	0.25	48.8	3.6	16.95	.20	30.5	0.5	51.26	.18	13.0	1.5	51.33	.21	16.3	0.4
10.6	58.68	.12	64.6	1.7	35.70	0.07	52.4	3.8	17.15	.15	30.0	0.2	51.44	.14	11.5	1.3	51.54	.17	15.9	0.2
20.5	58.80	.08	66.3	1.5	35.77	0.13	56.2	3.7	17.30	.10	29.8	0.0	51.58	.10	10.2	1.2	51.71	.11	15.7	0.0
30.5	58.88	.02	67.8	1.3	35.64	0.30	59.9	3.6	17.40	.05	29.8	0.1	51.68	.04	9.0	0.9	51.82	.05	15.7	0.2
Feb. 9.5	58.90	.02	69.1	1.1	35.34	0.47	63.5	3.4	17.45	.01	29.9	0.3	51.72	.01	8.1	0.6	51.87	.00	15.9	0.4
19.4	58.88	.07	70.2	0.8	34.87	0.62	66.9	3.1	17.44	.06	30.2	0.5	51.71	.05	7.5	0.5	51.87	.05	16.3	0.5
Mar. 1.4	58.81	.11	71.0	0.6	34.25	0.76	70.0	2.8	17.38	.10	30.7	0.5	51.66	.09	7.0	0.3	51.82	.09	16.8	0.6
11.4	58.70	.13	71.6	0.4	33.49	0.86	72.8	2.4	17.28	.13	31.2	0.6	51.57	.13	6.7	0.1	51.73	.12	17.4	0.7
21.4	58.57	.15	72.0	0.2	32.63	0.94	75.2	1.9	17.15	.16	31.8	0.6	51.44	.14	6.6	0.1	51.61	.15	18.1	0.6
31.3	58.42	.17	72.2	0.1	31.69	0.99	77.1	1.4	16.99	.17	32.4	0.6	51.30	.16	6.7	0.2	51.46	.17	18.7	0.7
Apr. 10.3	58.25	.16	72.1	0.2	30.70	1.03	78.5	0.9	16.82	.17	33.0	0.5	51.14	.16	6.9	0.3	51.29	.17	19.4	0.6
20.3	58.09	.16	71.9	0.5	29.67	1.02	79.4	0.3	16.65	.16	33.5	0.5	50.98	.15	7.2	0.5	51.12	.16	20.0	0.5
30.3	57.93	.15	71.4	0.6	28.65	1.01	79.7	0.1	16.49	.15	34.0	0.4	50.83	.15	7.7	0.5	50.96	.16	20.5	0.4
May 10.2	57.78	.12	70.8	0.7	27.64	0.97	79.6	0.7	16.34	.13	34.4	0.3	50.68	.12	8.2	0.7	50.80	.13	20.9	0.3
20.2	57.66	.10	70.1	0.9	26.67	0.90	78.9	1.2	16.21	.11	34.7	0.2	50.56	.11	8.9	0.7	50.67	.11	21.2	0.3
30.2	57.56	.08	69.2	1.0	25.77	0.81	77.7	1.7	16.10	.07	34.9	0.2	50.45	.07	9.6	0.7	50.56	.08	21.5	0.1
June 9.2	57.48	.04	68.2	1.1	24.96	0.71	76.0	2.2	16.03	.04	35.1	0.1	50.38	.05	10.3	0.8	50.48	.05	21.6	0.1
19.1	57.44	.02	67.1	1.2	24.25	0.58	73.8	2.5	15.99	.01	35.2	0.0	50.33	.02	11.1	0.8	50.43	.02	21.7	0.1
29.1	57.42	.02	65.9	1.3	23.67	0.45	71.3	2.8	15.98	.02	35.2	0.0	50.31	.02	11.9	0.9	50.41	.01	21.6	0.1
July 9.1	57.44	.05	64.6	1.2	23.22	0.29	68.5	3.1	16.00	.06	35.2	0.2	50.33	.04	12.8	0.8	50.42	.05	21.5	0.2
19.0	57.49	.08	63.4	1.2	22.93	0.13	65.4	3.2	16.06	.09	35.0	0.2	50.37	.07	13.6	0.8	50.47	.08	21.3	0.3
29.0	57.57	.10	62.2	1.1	22.80	0.03	62.2	3.2	16.15	.12	34.8	0.3	50.44	.10	14.4	0.7	50.55	.11	21.0	0.4
Aug. 8.0	57.67	.14	61.1	1.1	22.83	0.20	59.0	3.2	16.27	.14	34.5	0.4	50.54	.12	15.1	0.5	50.66	.14	20.6	0.5
18.0	57.81	.16	60.0	0.8	23.03	0.36	55.8	3.1	16.41	.18	34.1	0.5	50.66	.16	15.6	0.4	50.80	.16	20.1	0.6
27.9	57.97	.19	59.2	0.6	23.39	0.52	52.7	2.7	16.59	.20	33.6	0.6	50.82	.18	16.0	0.2	50.96	.20	19.5	0.7
Sept. 6.9	58.16	.21	58.6	0.3	23.91	0.67	50.0	2.4	16.79	.23	33.0	0.8	51.00	.21	16.2	0.0	51.16	.22	18.8	0.9
16.9	58.37	.24	58.3	0.0	24.58	0.79	47.6	1.9	17.02	.26	32.2	0.8	51.21	.23	16.2	0.2	51.38	.25	17.9	0.9
26.8	58.61	.26	58.3	0.3	25.37	0.89	45.7	1.4	17.28	.28	31.4	1.0	51.44	.25	16.0	0.5	51.63	.27	17.0	1.1
Oct. 6.8	58.87	.27	58.6	0.6	26.26	0.97	44.3	0.8	17.56	.29	30.4	1.1	51.69	.28	15.5	0.8	51.90	.30	15.9	1.2
16.8	59.14	.29	59.2	0.9	27.23	1.01	43.5	0.1	17.85	.32	29.3	1.2	51.97	.29	14.7	1.1	52.20	.31	14.7	1.2
26.8	59.43	.31	60.1	1.3	28.24	1.02	43.4	0.6	18.17	.32	28.1	1.2	52.26	.30	13.6	1.2	52.51	.33	13.5	1.3
Nov. 5.7	59.74	.30	61.4	1.5	29.26	0.98	44.0	1.2	18.49	.33	26.9	1.2	52.56	.31	12.4	1.5	52.84	.33	12.2	1.3
15.7	60.04	.30	62.9	1.7	30.24	0.92	45.2	1.8	18.82	.33	25.7	1.2	52.87	.31	10.9	1.6	53.17	.34	10.9	1.3
25.7	60.34	.29	64.6	1.9	31.16	0.82	47.0	2.4	19.15	.32	24.5	1.1	53.18	.30	9.3	1.7	53.51	.32	9.6	1.1
Dec. 5.7	60.63	.27	66.5	1.9	31.98	0.69	49.4	2.9	19.47	.30	23.4	1.0	53.48	.28	7.6	1.7	53.83	.31	8.5	1.0
15.6	60.90	.24	68.4	2.0	32.67	0.54	52.3	3.2	19.77	.27	22.4	0.8	53.76	.25	5.9	1.7	54.14	.28	7.5	0.8
25.6	61.14	.20	70.4	1.9	33.21	0.36	55.5	3.6	20.04	.23	21.6	0.6	54.01	.22	4.2	1.5	54.42	.24	6.7	0.6
35.6	61.34		72.3		33.57		59.1		20.27		21.0		54.23		2.7		54.66		6.1	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ε Hydræ.				σ^2 Cancri (mean).				ι Ursæ Majoris.				σ^2 Ursæ Majoris.				κ Cancri.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.	
	h m 8 41		° ′ + 6 45		h m 8 48		° ′ +30 55		h m 8 52		° ′ +48 24		h m 9 2		° ′ +67 30		h m 9 2		° ′ +11 2	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.6	48.45	.20	44.7	1.4	31.11	.24	58.8	0.0	47.04	.30	27.7	0.9	8.93	.48	45.6	1.8	39.83	.22	42.2	1.2
10.6	48.65	.15	43.3	1.1	31.35	.19	58.8	0.3	47.34	.23	28.6	1.3	9.41	.37	47.4	2.1	40.05	.17	41.0	1.0
20.5	48.80	.10	42.2	1.0	31.54	.13	59.1	0.6	47.57	.16	29.9	1.6	9.78	.26	49.5	2.5	40.22	.13	40.0	0.7
30.5	48.90	.05	41.2	0.7	31.67	.07	59.7	0.7	47.73	.09	31.5	1.7	10.04	.14	52.0	2.6	40.35	.07	39.3	0.5
Feb. 9.5	48.95	.00	40.5	0.5	31.74	.01	60.4	0.9	47.82	.01	33.2	1.9	10.18	.01	54.6	2.7	40.42	.02	38.8	0.3
19.5	48.95	.04	40.0	0.3	31.75	.04	61.3	1.0	47.83	.05	35.1	1.9	10.19	.10	57.3	2.6	40.44	.02	38.5	0.1
Mar. 1.4	48.91	.09	39.7	0.1	31.71	.08	62.3	1.1	47.78	.12	37.0	1.8	10.09	.21	59.9	2.5	40.42	.07	38.4	0.1
11.4	48.82	.12	39.6	0.0	31.63	.13	63.4	1.1	47.66	.17	38.8	1.7	9.88	.31	62.4	2.3	40.35	.10	38.5	0.2
21.4	48.70	.14	39.6	0.2	31.50	.16	64.5	1.0	47.49	.21	40.5	1.5	9.57	.37	64.7	2.0	40.25	.13	38.7	0.4
31.3	48.56	.15	39.8	0.3	31.34	.18	65.5	0.9	47.28	.23	42.0	1.2	9.20	.43	66.7	1.5	40.12	.14	39.1	0.4
Apr. 10.3	48.41	.16	40.1	0.4	31.16	.18	66.4	0.7	47.05	.25	43.2	0.9	8.77	.46	68.2	1.1	39.98	.15	39.5	0.5
20.3	48.25	.15	40.5	0.4	30.98	.18	67.1	0.6	46.80	.25	44.1	0.6	8.31	.47	69.3	0.6	39.83	.15	40.0	0.5
30.3	48.10	.15	40.9	0.5	30.80	.17	67.7	0.4	46.55	.24	44.7	0.3	7.84	.46	69.9	0.1	39.68	.15	40.5	0.6
May 10.2	47.95	.13	41.4	0.6	30.63	.15	68.1	0.2	46.31	.21	45.0	0.1	7.38	.43	70.0	0.4	39.53	.13	41.1	0.5
20.2	47.82	.10	42.0	0.6	30.48	.13	68.3	0.1	46.10	.19	44.9	0.4	6.95	.38	69.6	0.8	39.40	.11	41.6	0.6
30.2	47.72	.08	42.6	0.7	30.35	.09	68.4	0.2	45.91	.15	44.5	0.8	6.57	.33	68.8	1.3	39.29	.09	42.2	0.5
June 9.2	47.64	.05	43.3	0.7	30.26	.07	68.2	0.3	45.76	.10	43.7	1.0	6.24	.26	67.5	1.7	39.20	.07	42.7	0.5
19.1	47.59	.03	44.0	0.7	30.19	.03	67.9	0.5	45.66	.06	42.7	1.2	5.98	.18	65.8	2.0	39.13	.03	43.2	0.5
29.1	47.56	.01	44.7	0.6	30.16	.00	67.4	0.6	45.59	.01	41.5	1.5	5.80	.11	63.8	2.3	39.10	.01	43.7	0.4
July 9.1	47.57	.04	45.3	0.6	30.16	.04	66.8	0.7	45.58	.02	40.0	1.7	5.69	.02	61.5	2.5	39.09	.02	44.1	0.3
19.0	47.61	.06	45.9	0.6	30.20	.07	66.1	0.8	45.60	.08	38.3	1.8	5.67	.06	59.0	2.7	39.11	.05	44.4	0.3
29.0	47.67	.10	46.5	0.5	30.27	.11	65.3	1.0	45.68	.12	36.5	2.0	5.73	.14	56.3	2.8	39.16	.08	44.7	0.2
Aug. 8.0	47.77	.12	47.0	0.4	30.38	.14	64.3	1.1	45.80	.16	34.5	2.0	5.87	.22	53.5	2.8	39.24	.10	44.9	0.1
18.0	47.89	.15	47.4	0.2	30.52	.17	63.2	1.1	45.96	.20	32.5	2.0	6.09	.30	50.7	2.9	39.34	.13	45.0	0.1
27.9	48.04	.17	47.6	0.0	30.69	.20	62.1	1.2	46.16	.25	30.5	2.1	6.39	.38	47.8	2.8	39.47	.16	44.9	0.3
Sept. 6.9	48.21	.21	47.6	0.2	30.89	.23	60.9	1.3	46.41	.28	28.4	2.0	6.77	.44	45.0	2.7	39.63	.19	44.6	0.4
16.9	48.42	.22	47.4	0.4	31.12	.26	59.6	1.4	46.69	.33	26.4	2.0	7.21	.52	42.3	2.5	39.82	.22	44.2	0.7
26.9	48.64	.26	47.0	0.6	31.38	.29	58.2	1.4	47.02	.35	24.4	1.9	7.73	.57	39.8	2.3	40.04	.24	43.5	0.8
Oct. 6.8	48.90	.27	46.4	0.9	31.67	.31	56.8	1.5	47.37	.39	22.5	1.7	8.30	.63	37.5	2.0	40.28	.27	42.7	1.1
16.8	49.17	.29	45.5	1.1	31.98	.33	55.3	1.3	47.76	.41	20.8	1.6	8.93	.67	35.5	1.7	40.55	.29	41.6	1.2
26.8	49.46	.31	44.4	1.3	32.31	.35	54.0	1.4	48.17	.44	19.2	1.3	9.60	.71	33.8	1.3	40.84	.30	40.4	1.4
Nov. 5.7	49.77	.31	43.1	1.4	32.66	.36	52.6	1.3	48.61	.45	17.9	1.1	10.31	.72	32.5	0.8	41.14	.32	39.0	1.5
15.7	50.08	.31	41.7	1.6	33.02	.36	51.3	1.1	49.06	.44	16.8	0.7	11.03	.72	31.7	0.5	41.46	.33	37.5	1.6
25.7	50.39	.31	40.1	1.6	33.38	.36	50.2	0.9	49.50	.44	16.1	0.4	11.75	.71	31.2	0.1	41.79	.31	35.9	1.5
Dec. 5.7	50.70	.28	38.5	1.6	33.74	.33	49.3	0.7	49.94	.42	15.7	0.0	12.46	.68	31.3	0.6	42.10	.31	34.4	1.6
15.6	50.98	.26	36.9	1.6	34.07	.31	48.6	0.4	50.36	.38	15.7	0.4	13.14	.62	31.9	1.1	42.41	.28	32.8	1.4
25.6	51.24	.23	35.3	1.4	34.38	.27	48.2	0.1	50.74	.34	16.1	0.7	13.76	.54	33.0	1.5	42.69	.24	31.4	1.3
35.6	51.47		33.9		34.65		48.1		51.08		16.8		14.30		34.5		42.93		30.1	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	θ Hydræ.				β Argûs.				ι Argûs.				α Lyncis.				α Hydræ.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m 9 9 s		° ′ + 2 42 ″		h m 9 12 s		° ′ −69 19 ″		h m 9 14 s		° ′ −58 52 ″		h m 9 15 s		° ′ +34 47 ″		h m 9 22 s		° ′ − 8 15 ″	
Jan. 0.6	28.92	.22	36.0	1.7	14.18	.33	38.7	3.5	36.71	.27	41.9	3.5	20.15	.28	14.7	0.1	58.61	.22	4.3	2.2
10.6	29.14	.18	34.3	1.5	14.51	.23	42.2	3.8	36.98	.19	45.4	3.7	20.43	.22	14.8	0.3	58.83	.18	6.5	2.0
20.6	29.32	.12	32.8	1.2	14.74	.10	46.0	3.8	37.17	.11	49.1	3.8	20.65	.16	15.1	0.7	59.01	.14	8.5	2.0
30.5	29.44	.08	31.6	1.1	14.84	.02	49.8	3.8	37.28	.03	52.9	3.7	20.81	.11	15.8	1.0	59.15	.08	10.5	1.7
Feb. 9.5	29.52	.03	30.5	0.8	14.82	.13	53.6	3.6	37.31	.06	56.6	3.5	20.92	.04	16.8	1.1	59.23	.03	12.2	1.5
19.5	29.55	.02	29.7	0.6	14.69	.23	57.2	3.5	37.25	.13	60.1	3.3	20.96	.01	17.9	1.3	59.26	.01	13.7	1.2
Mar. 1.5	29.53	.06	29.1	0.4	14.46	.33	60.7	3.2	37.12	.20	63.4	3.0	20.95	.07	19.2	1.3	59.25	.06	14.9	1.0
11.4	29.47	.10	28.7	0.1	14.13	.41	63.9	2.8	36.92	.26	66.4	2.7	20.88	.11	20.5	1.3	59.19	.08	15.9	0.7
21.4	29.37	.12	28.6	0.0	13.72	.48	66.7	2.4	36.66	.31	69.1	2.2	20.77	.14	21.8	1.3	59.11	.12	16.6	0.5
31.4	29.25	.14	28.6	0.2	13.24	.53	69.1	2.0	36.35	.33	71.3	1.8	20.63	.17	23.1	1.1	58.99	.14	17.1	0.2
Apr. 10.3	29.11	.15	28.8	0.3	12.71	.56	71.1	1.5	36.02	.37	73.1	1.3	20.46	.19	24.2	1.0	58.85	.14	17.3	0.0
20.3	28.96	.15	29.1	0.4	12.15	.59	72.6	1.0	35.65	.37	74.4	0.8	20.27	.18	25.2	0.8	58.71	.15	17.3	0.2
30.3	28.81	.14	29.5	0.5	11.56	.59	73.6	0.4	35.28	.37	75.2	0.3	20.09	.18	26.0	0.6	58.56	.15	17.1	0.4
May 10.3	28.67	.13	30.0	0.6	10.97	.57	74.0	0.1	34.91	.37	75.5	0.3	19.91	.17	26.6	0.3	58.41	.14	16.7	0.6
20.2	28.54	.12	30.6	0.7	10.40	.56	73.9	0.7	34.54	.34	75.2	0.7	19.74	.14	26.9	0.1	58.27	.12	16.1	0.8
30.2	28.42	.09	31.3	0.7	9.84	.51	73.2	1.1	34.20	.32	74.5	1.2	19.60	.12	27.0	0.2	58.15	.11	15.3	0.9
June 9.2	28.33	.07	32.0	0.8	9.33	.47	72.1	1.7	33.88	.28	73.3	1.7	19.48	.10	26.8	0.3	58.04	.08	14.4	1.1
19.2	28.26	.04	32.8	0.8	8.86	.41	70.4	2.0	33.60	.25	71.6	2.1	19.38	.06	26.5	0.6	57.96	.06	13.3	1.2
29.1	28.22	.02	33.6	0.8	8.45	.33	68.4	2.5	33.35	.19	69.5	2.5	19.32	.02	25.9	0.7	57.90	.03	12.1	1.2
July 9.1	28.20	.01	34.4	0.8	8.12	.26	65.9	2.8	33.16	.14	67.0	2.7	19.30	.01	25.2	1.0	57.87	.01	10.9	1.3
19.1	28.21	.04	35.2	0.7	7.86	.16	63.1	3.0	33.02	.08	64.3	3.0	19.31	.04	24.2	1.1	57.86	.02	9.6	1.3
29.0	28.25	.07	35.9	0.7	7.70	.07	60.1	3.2	32.94	.02	61.3	3.1	19.35	.08	23.1	1.2	57.88	.04	8.3	1.3
Aug. 8.0	28.32	.09	36.6	0.5	7.63	.03	56.9	3.2	32.92	.04	58.2	3.0	19.43	.11	21.9	1.3	57.92	.08	7.0	1.1
18.0	28.41	.12	37.1	0.4	7.66	.13	53.7	3.1	32.96	.11	55.2	3.0	19.54	.14	20.6	1.5	58.00	.10	5.9	1.0
28.0	28.53	.15	37.5	0.1	7.79	.24	50.6	3.0	33.07	.18	52.2	2.8	19.68	.18	19.1	1.6	58.10	.13	4.9	0.7
Sept. 6.9	28.68	.18	37.6	0.0	8.03	.34	47.6	2.7	33.25	.25	49.4	2.5	19.86	.21	17.5	1.6	58.23	.16	4.2	0.5
16.9	28.86	.20	37.6	0.3	8.37	.43	44.9	2.2	33.50	.31	46.9	2.1	20.07	.25	15.9	1.7	58.39	.20	3.7	0.2
26.9	29.06	.24	37.3	0.6	8.80	.51	42.7	1.8	33.81	.37	44.8	1.6	20.32	.28	14.2	1.7	58.59	.22	3.5	0.1
Oct. 6.9	29.30	.25	36.7	0.8	9.31	.58	40.9	1.3	34.18	.41	43.2	1.0	20.60	.30	12.5	1.8	58.81	.25	3.6	0.4
16.8	29.55	.29	35.9	1.1	9.89	.64	39.6	0.6	34.59	.46	42.2	0.4	20.90	.34	10.7	1.6	59.06	.27	4.0	0.9
26.8	29.84	.30	34.8	1.4	10.53	.67	39.0	0.1	35.05	.48	41.8	0.2	21.24	.35	9.1	1.6	59.33	.30	4.9	1.2
Nov. 5.8	30.14	.31	33.4	1.5	11.20	.68	39.1	0.7	35.53	.49	42.0	0.9	21.59	.37	7.5	1.5	59.63	.31	6.1	1.5
15.7	30.45	.31	31.9	1.7	11.88	.66	39.8	1.4	36.02	.49	42.9	1.5	21.96	.38	6.0	1.3	59.94	.31	7.6	1.7
25.7	30.76	.31	30.2	1.8	12.54	.63	41.2	2.0	36.51	.47	44.4	2.1	22.34	.38	4.7	1.0	60.25	.32	9.3	2.0
Dec. 5.7	31.07	.30	28.4	1.9	13.17	.57	43.2	2.5	36.98	.43	46.5	2.6	22.72	.36	3.7	0.8	60.57	.30	11.3	2.2
15.7	31.37	.28	26.5	1.8	13.74	.49	45.7	3.0	37.41	.38	49.1	3.0	23.08	.34	2.9	0.4	60.87	.28	13.5	2.2
25.6	31.65	.24	24.7	1.7	14.23	.40	48.7	3.4	37.79	.32	52.1	3.4	23.42	.30	2.5	0.2	61.15	.25	15.7	2.2
35.6	31.89		23.0		14.63		52.1		38.11		55.5		23.72		2.3		61.40		17.9	

FIXED STARS, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ι Draconis (H.).				*d* Ursæ Majoris.				*θ* Ursæ Majoris.				10 Leonis Minoris.				*o* Leonis.			
	Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.	
	h m 9 23		° ′ +81 44		h m 9 26		° ′ +70 14		h m 9 26		° ′ +52 5		h m 9 28		° ′ +36 48		h m 9 36		° ′ +10 18	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.6	47.07	1.22	18.0	2.1	11.89	.58	23.0	1.7	34.83	.35	68.7	0.8	28.29	.29	43.9	0.1	8.37	.24	67.9	1.4
10.6	48.29	0.98	20.1	2.5	12.47	.47	24.7	2.1	35.18	.29	69.5	1.3	28.58	.24	44.0	0.4	8.61	.21	66.5	1.1
20.6	49.27	0.70	22.6	2.9	12.94	.35	26.8	2.4	35.47	.22	70.8	1.6	28.82	.19	44.4	0.7	8.82	.15	65.4	0.9
30.5	49.97	0.39	25.5	3.0	13.29	.21	29.2	2.7	35.69	.15	72.4	1.8	29.01	.12	45.1	1.0	8.97	.11	64.5	0.6
Feb. 9.5	50.36	0.09	28.5	3.1	13.50	.08	31.9	2.8	35.84	.06	74.2	2.1	29.13	.06	46.1	1.3	9.08	.06	63.9	0.4
19.5	50.45	0.22	31.6	3.1	13.58	.06	34.7	2.8	35.90	.02	76.3	2.1	29.19	.00	47.4	1.4	9.14	.01	63.5	0.2
Mar. 1.5	50.23	0.51	34.7	2.9	13.52	.18	37.5	2.7	35.88	.08	78.4	2.1	29.19	.05	48.8	1.4	9.15	.04	63.3	0.1
11.4	49.72	0.77	37.6	2.7	13.34	.30	40.2	2.6	35.80	.15	80.5	2.1	29.14	.10	50.2	1.5	9.11	.07	63.4	0.2
21.4	48.95	0.98	40.3	2.3	13.04	.38	42.8	2.2	35.65	.19	82.6	1.8	29.04	.14	51.7	1.4	9.04	.10	63.6	0.4
31.4	47.97	1.15	42.6	1.8	12.66	.46	45.0	1.8	35.46	.24	84.4	1.6	28.90	.16	53.1	1.3	8.94	.13	64.0	0.4
Apr. 10.4	46.82	1.27	44.4	1.3	12.20	.50	46.8	1.4	35.22	.25	86.0	1.3	28.74	.18	54.4	1.1	8.81	.14	64.4	0.5
20.3	45.55	1.33	45.7	0.7	11.70	.53	48.2	0.8	34.97	.27	87.3	0.9	28.56	.19	55.5	0.9	8.67	.14	64.9	0.6
30.3	44.22	1.34	46.4	0.2	11.17	.53	49.0	0.4	34.70	.26	88.2	0.5	28.37	.19	56.4	0.6	8.53	.14	65.5	0.6
May 10.3	42.88	1.30	46.6	0.4	10.64	.51	49.4	0.1	34.44	.25	88.7	0.2	28.18	.17	57.0	0.4	8.39	.14	66.1	0.6
20.2	41.58	1.22	46.2	0.9	10.13	.47	49.3	0.6	34.19	.22	88.9	0.3	28.01	.16	57.4	0.1	8.25	.12	66.7	0.6
30.2	40.36	1.10	45.3	1.5	9.66	.42	48.7	1.2	33.97	.20	88.6	0.6	27.85	.13	57.5	0.1	8.13	.10	67.3	0.6
June 9.2	39.26	0.94	43.8	1.9	9.24	.35	47.5	1.5	33.77	.15	88.0	0.9	27.72	.10	57.4	0.4	8.03	.08	67.9	0.5
19.2	38.32	0.76	41.9	2.3	8.89	.27	46.0	1.9	33.62	.12	87.1	1.3	27.62	.07	57.0	0.6	7.95	.06	68.4	0.5
29.1	37.56	0.56	39.6	2.7	8.62	.19	44.1	2.3	33.50	.07	85.8	1.5	27.55	.04	56.4	0.8	7.89	.03	68.9	0.4
July 9.1	37.00	0.34	36.9	2.9	8.43	.10	41.8	2.5	33.43	.03	84.3	1.8	27.51	.01	55.6	1.0	7.86	.01	69.3	0.4
19.1	36.66	0.12	34.0	3.1	8.33	.02	39.3	2.8	33.40	.02	82.5	2.0	27.50	.03	54.6	1.2	7.85	.02	69.7	0.3
29.1	36.54	0.11	30.9	3.3	8.31	.08	36.5	3.0	33.42	.07	80.5	2.2	27.53	.06	53.4	1.3	7.87	.04	70.0	0.1
Aug. 8.0	36.65	0.34	27.6	3.4	8.39	.17	33.5	3.0	33.49	.12	78.3	2.3	27.59	.10	52.1	1.5	7.91	.07	70.1	0.1
18.0	36.99	0.56	24.2	3.3	8.56	.27	30.5	3.1	33.61	.16	76.0	2.4	27.69	.13	50.6	1.7	7.98	.10	70.2	0.2
28.0	37.55	0.77	20.9	3.3	8.83	.35	27.4	3.0	33.77	.21	73.6	2.4	27.82	.17	48.9	1.7	8.08	.13	70.0	0.3
Sept. 6.9	38.32	0.97	17.6	3.1	9.18	.43	24.4	2.9	33.98	.25	71.2	2.5	27.99	.20	47.2	1.8	8.21	.16	69.7	0.5
16.9	39.29	1.17	14.5	3.0	9.61	.52	21.5	2.8	34.23	.30	68.7	2.4	28.19	.24	45.4	1.9	8.37	.19	69.2	0.7
26.9	40.46	1.34	11.5	2.6	10.13	.59	18.7	2.6	34.53	.34	66.3	2.3	28.43	.27	43.5	1.9	8.56	.21	68.5	0.9
Oct. 6.9	41.80	1.49	8.9	2.4	10.72	.66	16.1	2.4	34.87	.38	64.0	2.2	28.70	.30	41.6	1.8	8.77	.25	67.6	1.1
16.8	43.29	1.61	6.5	1.9	11.38	.71	13.7	2.0	35.25	.42	61.8	1.9	29.00	.34	39.8	1.9	9.02	.28	66.5	1.4
26.8	44.90	1.71	4.6	1.4	12.09	.77	11.7	1.6	35.67	.45	59.9	1.8	29.34	.36	37.9	1.7	9.30	.29	65.1	1.5
Nov. 5.8	46.61	1.77	3.2	1.0	12.86	.79	10.1	1.2	36.12	.47	58.1	1.4	29.70	.37	36.2	1.6	9.59	.32	63.6	1.6
15.8	48.38	1.79	2.2	0.4	13.65	.81	8.9	0.7	36.59	.48	56.7	1.1	30.07	.39	34.6	1.3	9.91	.32	62.0	1.7
25.7	50.17	1.76	1.8	0.2	14.46	.81	8.2	0.2	37.07	.47	55.6	0.7	30.46	.39	33.3	1.2	10.23	.32	60.3	1.8
Dec. 5.7	51.93	1.68	2.0	0.7	15.27	.77	8.0	0.4	37.54	.47	54.9	0.3	30.85	.37	32.1	0.8	10.55	.32	58.5	1.7
15.7	53.61	1.56	2.7	1.3	16.04	.72	8.4	0.9	38.01	.43	54.6	0.2	31.22	.36	31.3	0.5	10.87	.30	56.8	1.6
25.6	55.17	1.37	4.0	1.8	16.76	.64	9.3	1.4	38.44	.39	54.8	0.6	31.58	.32	30.8	0.1	11.17	.27	55.2	1.5
35.6	56.54		5.8		17.40		10.7		38.83		55.4		31.90		30.7		11.44		53.7	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Chamæleontis.				ε Leonis.				μ Leonis.				19 Leonis Minoris.				π Leonis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	9 36		−80 30		9 40		+24 12		9 47		+26 26		9 51		+41 29		9 55		+ 8 29	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.6	49.13	0.73	55.8	3.2	31.22	.27	17.8	0.6	25.27	.28	51.0	0.6	55.91	.32	61.0	0.1	15.01	.25	39.4	1.5
10.6	49.86	0.50	59.0	3.6	31.49	.23	17.2	0.4	25.55	.24	50.4	0.3	56.23	.28	61.1	0.5	15.26	.22	37.9	1.3
20.6	50.36	0.27	62.6	3.8	31.72	.17	16.8	0.0	25.79	.18	50.1	0.0	56.51	.22	61.6	0.9	15.48	.18	36.6	1.0
30.6	50.63	0.03	66.4	3.8	31.89	.13	16.8	0.2	25.97	.13	50.1	0.4	56.73	.16	62.5	1.3	15.66	.12	35.6	0.8
Feb. 9.5	50.66	0.20	70.2	3.8	32.02	.06	17.0	0.4	26.10	.08	50.5	0.6	56.89	.09	63.8	1.4	15.78	.08	34.8	0.6
19.5	50.46	0.43	74.0	3.6	32.08	.02	17.4	0.7	26.18	.02	51.1	0.8	56.98	.03	65.2	1.7	15.86	.03	34.2	0.3
Mar. 1.5	50.03	0.63	77.6	3.5	32.10	.03	18.1	0.8	26.20	.02	51.9	0.9	57.01	.03	66.9	1.7	15.89	.02	33.9	0.1
11.4	49.40	0.81	81.1	3.2	32.07	.08	18.9	1.0	26.18	.07	52.8	1.1	56.98	.08	68.6	1.7	15.87	.06	33.8	0.2
21.4	48.59	0.97	84.3	2.9	31.99	.11	19.9	0.9	26.11	.11	53.9	1.1	56.90	.13	70.3	1.7	15.81	.09	34.0	0.3
31.4	47.62	1.09	87.2	2.4	31.88	.13	20.8	1.0	26.00	.13	55.0	1.0	56.77	.16	72.0	1.6	15.72	.11	34.3	0.4
Apr. 10.4	46.53	1.20	89.6	2.0	31.75	.15	21.8	0.9	25.87	.15	56.0	1.0	56.61	.18	73.6	1.4	15.61	.12	34.7	0.5
20.3	45.33	1.27	91.6	1.5	31.60	.15	22.7	0.8	25.72	.15	57.0	0.9	56.43	.20	75.0	1.1	15.49	.14	35.2	0.5
30.3	44.06	1.31	93.1	1.0	31.45	.16	23.5	0.7	25.57	.16	57.9	0.8	56.23	.20	76.1	0.8	15.35	.13	35.7	0.7
May 10.3	42.75	1.32	94.1	0.5	31.29	.14	24.2	0.6	25.41	.15	58.7	0.6	56.03	.19	76.9	0.6	15.22	.14	36.4	0.6
20.3	41.43	1.30	94.6	0.1	31.15	.13	24.8	0.4	25.26	.14	59.3	0.4	55.84	.17	77.5	0.2	15.08	.12	37.0	0.6
30.2	40.13	1.25	94.5	0.6	31.02	.12	25.2	0.3	25.12	.12	59.7	0.2	55.67	.16	77.7	0.1	14.96	.10	37.6	0.6
June 9.2	38.88	1.18	93.9	1.2	30.90	.09	25.5	0.1	25.00	.10	59.9	0.1	55.51	.13	77.6	0.4	14.86	.09	38.2	0.6
19.2	37.70	1.06	92.7	1.6	30.81	.07	25.6	0.0	24.90	.07	60.0	0.1	55.38	.11	77.2	0.7	14.77	.07	38.8	0.6
29.1	36.64	0.93	91.1	2.1	30.74	.04	25.6	0.2	24.83	.05	59.9	0.3	55.27	.07	76.5	0.9	14.70	.05	39.4	0.5
July 9.1	35.71	0.77	89.0	2.5	30.70	.01	25.4	0.4	24.78	.02	59.6	0.5	55.20	.04	75.6	1.2	14.65	.02	39.9	0.4
19.1	34.94	0.58	86.5	2.8	30.69	.02	25.0	0.5	24.76	.01	59.1	0.6	55.16	.00	74.4	1.4	14.63	.00	40.3	0.3
29.1	34.36	0.38	83.7	3.0	30.71	.04	24.5	0.6	24.77	.04	58.5	0.8	55.16	.04	73.0	1.7	14.63	.02	40.6	0.3
Aug. 8.0	33.98	0.16	80.7	3.2	30.75	.08	23.9	0.8	24.81	.07	57.7	0.9	55.20	.07	71.3	1.8	14.65	.05	40.9	0.1
18.0	33.82	0.08	77.5	3.2	30.83	.10	23.1	1.0	24.88	.10	56.8	1.1	55.27	.11	69.5	1.9	14.70	.08	41.0	0.1
28.0	33.90	0.30	74.3	3.1	30.93	.14	22.1	1.1	24.98	.13	55.7	1.3	55.38	.14	67.6	2.1	14.78	.11	40.9	0.2
Sept. 7.0	34.20	0.54	71.2	2.9	31.07	.17	21.0	1.2	25.11	.16	54.4	1.4	55.52	.19	65.5	2.1	14.89	.14	40.7	0.5
16.9	34.74	0.75	68.3	2.6	31.24	.20	19.8	1.4	25.27	.20	53.0	1.5	55.71	.22	63.4	2.2	15.03	.17	40.2	0.6
26.9	35.49	0.94	65.7	2.2	31.44	.23	18.4	1.6	25.47	.23	51.5	1.6	55.93	.26	61.2	2.2	15.20	.20	39.6	0.9
Oct. 6.9	36.43	1.11	63.5	1.7	31.67	.26	16.8	1.6	25.70	.26	49.9	1.7	56.19	.30	59.0	2.2	15.40	.24	38.7	1.1
16.8	37.54	1.24	61.8	1.1	31.93	.29	15.2	1.7	25.96	.29	48.2	1.8	56.49	.34	56.8	2.1	15.64	.26	37.6	1.4
26.8	38.78	1.32	60.7	0.5	32.22	.32	13.5	1.7	26.25	.32	46.4	1.8	56.83	.36	54.7	2.0	15.90	.29	36.2	1.5
Nov. 5.8	40.10	1.37	60.2	0.2	32.54	.33	11.8	1.7	26.57	.33	44.6	1.8	57.19	.39	52.7	1.8	16.19	.31	34.7	1.7
15.8	41.47	1.35	60.4	0.9	32.87	.35	10.1	1.6	26.90	.35	42.8	1.7	57.58	.41	50.9	1.6	16.50	.32	33.0	1.8
25.7	42.82	1.30	61.3	1.5	33.22	.35	8.5	1.5	27.25	.36	41.1	1.5	57.99	.41	49.3	1.2	16.82	.32	31.2	1.8
Dec. 5.7	44.12	1.18	62.8	2.1	33.57	.34	7.0	1.4	27.61	.35	39.6	1.3	58.40	.40	48.1	0.9	17.14	.32	29.4	1.9
15.7	45.30	1.03	64.9	2.6	33.91	.32	5.6	1.1	27.96	.33	38.3	1.1	58.80	.39	47.2	0.5	17.46	.31	27.5	1.7
25.7	46.33	0.85	67.5	3.0	34.23	.30	4.5	0.8	28.29	.30	37.2	0.8	59.19	.36	46.7	0.1	17.77	.28	25.8	1.6
35.6	47.18		70.5		34.53		3.7		28.59		36.4		59.55		46.6		18.05		24.2	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Leonis. (*Regulus.*)				32 Ursæ Majoris.				λ Ursæ Majoris.				γ¹ Leonis.				μ Hydræ.			
	Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.	
	h m 10 3		° ′ +12 25		h m 10 11		° ′ +65 34		h m 10 11		° ′ +43 22		h m 10 14		° ′ +20 18		h m 10 21		° ′ −16 21	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	22.15	.27	31.5	1.3	13.10	.55	23.7	1.0	25.87	.35	50.4	0.0	47.51	.29	55.2	1.1	32.98	.26	18.5	2.5
10.6	22.42	.23	30.2	1.1	13.65	.48	24.7	1.5	26.22	.31	50.4	0.5	47.80	.25	54.1	0.7	33.24	.23	21.0	2.4
20.6	22.65	.18	29.1	0.9	14.13	.39	26.2	2.0	26.53	.25	50.9	0.9	48.05	.20	53.4	0.4	33.47	.19	23.4	2.4
30.6	22.83	.14	28.2	0.5	14.52	.28	28.2	2.3	26.78	.18	51.8	1.2	48.25	.16	53.0	0.2	33.66	.14	25.8	2.3
Feb. 9.5	22.97	.08	27.7	0.3	14.80	.18	30.5	2.5	26.96	.12	53.0	1.6	48.41	.10	52.8	0.2	33.80	.09	28.1	2.0
19.5	23.05	.04	27.4	0.1	14.98	.07	33.0	2.7	27.08	.06	54.6	1.7	48.51	.05	53.0	0.4	33.89	.05	30.1	1.9
Mar. 1.5	23.09	.01	27.3	0.2	15.05	.05	35.7	2.8	27.14	.01	56.3	1.9	48.56	.01	53.4	0.6	33.94	.00	32.0	1.5
11.5	23.08	.05	27.5	0.3	15.00	.14	38.5	2.6	27.13	.06	58.2	1.9	48.57	.04	54.0	0.8	33.94	.04	33.5	1.3
21.4	23.03	.08	27.8	0.5	14.86	.22	41.1	2.5	27.07	.11	60.1	1.8	48.53	.08	54.8	0.9	33.90	.08	34.8	1.0
31.4	22.95	.11	28.3	0.6	14.64	.30	43.6	2.2	26.96	.15	61.9	1.8	48.45	.10	55.7	0.9	33.82	.10	35.8	0.8
Apr. 10.4	22.84	.12	28.9	0.6	14.34	.36	45.8	1.8	26.81	.18	63.7	1.5	48.35	.12	56.6	0.9	33.72	.12	36.6	0.5
20.4	22.72	.13	29.5	0.7	13.98	.38	47.6	1.4	26.63	.19	65.2	1.3	48.23	.14	57.5	0.9	33.60	.13	37.1	0.2
30.3	22.59	.14	30.2	0.7	13.60	.41	49.0	1.0	26.44	.20	66.5	1.0	48.09	.14	58.4	0.8	33.47	.14	37.3	0.1
May 10.3	22.45	.13	30.9	0.6	13.19	.41	50.0	0.5	26.24	.20	67.5	0.7	47.95	.13	59.2	0.8	33.33	.13	37.2	0.3
20.3	22.32	.13	31.5	0.6	12.78	.39	50.5	0.0	26.04	.19	68.2	0.3	47.82	.13	60.0	0.6	33.20	.14	36.9	0.5
30.2	22.19	.11	32.1	0.6	12.39	.37	50.5	0.5	25.85	.17	68.5	0.1	47.69	.12	60.6	0.4	33.06	.12	36.4	0.8
June 9.2	22.08	.09	32.7	0.5	12.02	.33	50.0	1.0	25.68	.15	68.6	0.4	47.57	.10	61.0	0.4	32.94	.11	35.6	0.9
19.2	21.99	.08	33.2	0.4	11.69	.27	49.0	1.4	25.53	.13	68.2	0.6	47.47	.09	61.4	0.2	32.83	.10	34.7	1.1
29.2	21.91	.05	33.6	0.4	11.42	.23	47.6	1.8	25.40	.09	67.6	0.9	47.38	.06	61.6	0.0	32.73	.08	33.6	1.3
July 9.1	21.86	.03	34.0	0.2	11.19	.16	45.8	2.1	25.31	.06	66.7	1.2	47.32	.04	61.6	0.1	32.65	.06	32.3	1.4
19.1	21.83	.01	34.2	0.1	11.03	.10	43.7	2.5	25.25	.03	65.5	1.5	47.28	.01	61.5	0.3	32.59	.04	30.9	1.4
29.1	21.82	.02	34.3	0.0	10.93	.03	41.2	2.7	25.22	.01	64.0	1.7	47.27	.01	61.2	0.5	32.55	.02	29.5	1.5
Aug. 8.1	21.84	.05	34.3	0.1	10.90	.04	38.5	2.9	25.23	.04	62.3	1.9	47.28	.03	60.7	0.6	32.53	.01	28.0	1.4
18.0	21.89	.07	34.2	0.3	10.94	.11	35.6	3.0	25.27	.08	60.4	2.1	47.31	.07	60.1	0.8	32.54	.05	26.6	1.3
28.0	21.96	.10	33.9	0.5	11.05	.18	32.6	3.2	25.35	.13	58.3	2.2	47.38	.10	59.3	1.0	32.59	.07	25.3	1.2
Sept. 7.0	22.06	.14	33.4	0.7	11.23	.26	29.4	3.1	25.48	.16	56.1	2.3	47.48	.13	58.3	1.2	32.66	.11	24.1	0.9
16.9	22.20	.16	32.7	0.9	11.49	.33	26.3	3.1	25.64	.20	53.8	2.4	47.61	.16	57.1	1.3	32.77	.14	23.2	0.7
26.9	22.36	.20	31.8	1.1	11.82	.40	23.2	3.0	25.84	.25	51.4	2.4	47.77	.19	55.8	1.5	32.91	.18	22.5	0.3
Oct. 6.9	22.56	.23	30.7	1.3	12.22	.47	20.2	2.8	26.09	.29	49.0	2.4	47.96	.23	54.3	1.6	33.09	.22	22.2	0.1
16.9	22.79	.26	29.4	1.5	12.69	.53	17.4	2.6	26.38	.32	46.6	2.4	48.19	.27	52.7	1.8	33.31	.25	22.3	0.4
26.8	23.05	.29	27.9	1.6	13.22	.58	14.8	2.2	26.70	.36	44.2	2.2	48.46	.29	50.9	1.9	33.56	.27	22.7	0.8
Nov. 5.8	23.34	.31	26.3	1.8	13.80	.63	12.6	1.9	27.06	.39	42.0	2.0	48.75	.32	49.0	1.9	33.83	.31	23.5	1.3
15.8	23.65	.32	24.5	1.8	14.43	.66	10.7	1.4	27.45	.41	40.0	1.7	49.07	.33	47.1	1.9	34.14	.32	24.8	1.6
25.8	23.97	.33	22.7	1.8	15.09	.67	9.3	1.0	27.86	.42	38.3	1.4	49.40	.34	45.2	1.8	34.46	.32	26.4	1.9
Dec. 5.7	24.30	.33	20.9	1.8	15.76	.67	8.3	0.4	28.28	.42	36.9	1.1	49.74	.35	43.4	1.6	34.78	.33	28.3	2.2
15.7	24.63	.31	19.1	1.6	16.43	.64	7.9	0.1	28.70	.41	35.8	0.6	50.09	.33	41.8	1.5	35.11	.31	30.5	2.3
25.7	24.94	.29	17.5	1.5	17.07	.60	8.0	0.7	29.11	.38	35.2	0.3	50.42	.31	40.3	1.2	35.42	.29	32.8	2.5
35.6	25.23		16.0		17.67		8.7		29.49		34.9		50.73		39.1		35.71		35.3	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Leonis Minoris.				α Antliæ.				9 Draconis (H.).				ρ Leonis.				41 Leonis Minoris.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 10 22		° ′ +37 10		h m 10 22		° ′ −30 35		h m 10 27		° ′ +76 11		h m 10 27		° ′ + 9 47		h m 10 38		° ′ +23 40	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	26.97	.34	69.6	0.3	51.56	.28	13.4	2.8	7.65	0.93	34.5	1.2	51.79	.29	22.3	1.6	18.29	.31	43.1	1.0
10.6	27.31	.29	69.3	0.1	51.84	.24	16.2	3.0	8.58	0.81	35.7	1.7	52.08	.24	20.7	1.3	18.60	.27	42.1	0.7
20.6	27.60	.24	69.4	0.4	52.08	.19	19.2	2.9	9.39	0.67	37.4	2.2	52.32	.21	19.4	1.1	18.87	.23	41.4	0.4
30.6	27.84	.19	69.8	0.9	52.27	.14	22.1	2.9	10.06	0.50	39.6	2.6	52.53	.15	18.3	0.8	19.10	.18	41.0	0.0
Feb. 9.6	28.03	.13	70.7	1.1	52.41	.09	25.0	2.8	10.56	0.33	42.2	2.8	52.68	.11	17.5	0.5	19.28	.13	41.0	0.3
19.5	28.16	.06	71.8	1.4	52.50	.04	27.8	2.6	10.89	0.13	45.0	3.0	52.79	.06	17.0	0.3	19.41	.08	41.3	0.6
Mar. 1.5	28.22	.01	73.2	1.6	52.54	.01	30.4	2.3	11.02	0.04	48.0	3.1	52.85	.02	16.7	0.0	19 49	.03	41.9	0.8
11.5	28.23	.04	74.8	1.6	52.53	.06	32.7	2.0	10.98	0.22	51.1	2.9	52.87	.03	16.7	0.2	19.52	.02	42.7	1.0
21.4	28.19	.09	76.4	1.7	52.47	.09	34.7	1.8	10.76	0.37	54.0	2.8	52.84	.06	16.9	0.4	19.50	.06	43.7	1.1
31.4	28.10	.12	78.1	1.6	52.38	.11	36.5	1.4	10.39	0.51	56.8	2.4	52.78	.08	17.3	0.5	19.44	.09	44.8	1.2
Apr. 10.4	27.98	.15	79.7	1.4	52.27	.14	37.9	1.0	9.88	0.61	59.2	2.0	52.70	.11	17.8	0.6	19.35	.11	46.0	1.1
20.4	27.83	.16	81.1	1.3	52.13	.16	38.9	0.7	9.27	0.70	61.2	1.6	52.59	.12	18.4	0.6	19.24	.13	47.1	1.1
30.3	27.67	.18	82.4	1.1	51.97	.16	39.6	0.4	8.57	0.74	62.8	1.1	52.47	.13	19.0	0.7	19.11	.13	48.2	1.0
May 10.3	27.49	.17	83.5	0.8	51.81	.17	40.0	0.0	7.83	0.76	63.9	0.5	52.34	.12	19.7	0.7	18.98	.14	49.2	0.9
20.3	27.32	.17	84.3	0.5	51.64	.16	40.0	0.4	7.07	0.75	64.4	0.0	52.22	.12	20.4	0.7	18.84	.13	50.1	0.7
30.3	27.15	.15	84.8	0.2	51.48	.15	39.6	0.7	6.32	0.72	64.4	0.6	52.10	.12	21.1	0.6	18.71	.13	50.8	0.5
June 9.2	27.00	.14	85.0	0.0	51.33	.14	38.9	1.0	5.60	0.67	63.8	1.0	51.98	.10	21.7	0.6	18.58	.11	51.3	0.3
19.2	26.86	.11	85.0	0.4	51.19	.13	37.9	1.3	4.93	0.59	62.8	1.6	51.88	.08	22.3	0.5	18.47	.10	51.6	0.2
29.2	26.75	.09	84.6	0.6	51.06	.11	36.6	1.6	4.34	0.50	61.2	2.0	51.80	.07	22.8	0.4	18.37	.08	51.8	0.1
July 9.1	26.66	.06	84.0	0.9	50.95	.09	35.0	1.8	3.84	0.40	59.2	2.5	51.73	.05	23.2	0.4	18.29	.06	51.7	0.2
19.1	26.60	.03	83.1	1.1	50.86	.06	33.2	1.9	3.44	0.29	56.7	2.7	51.68	.03	23.6	0.3	18.23	.04	51.5	0.4
29.1	26.57	.00	82.0	1.4	50.80	.04	31.3	2.0	3.15	0.17	54.0	3.0	51.65	.00	23.9	0.1	18.19	.01	51.1	0.6
Aug. 8.1	26.57	.03	80.6	1.6	50.76	.00	29.3	2.1	2.98	0.04	51.0	3.2	51.65	.02	24.0	0.0	18.18	.01	50.5	0.9
18.0	26.60	.06	79.0	1.8	50.76	.03	27.2	2.0	2.94	0.08	47.8	3.4	51.67	.05	24.0	0.2	18.19	.04	49.6	1.0
28.0	26.66	.10	77.2	1.9	50.79	.07	25.2	1.9	3.02	0.21	44.4	3.5	51.72	.08	23.8	0.4	18.23	.07	48.6	1.2
Sept. 7.0	26.76	.14	75.3	2.1	50.86	.11	23.3	1.6	3.23	0.34	40.9	3.5	51.80	.10	23.4	0.6	18.30	.11	47.4	1.4
17.0	26.90	.17	73.2	2.2	50.97	.15	21.7	1.4	3.57	0.47	37.4	3.4	51.90	.14	22.8	0.8	18.41	.14	46.0	1.6
26.9	27.07	.22	71.0	2.2	51.12	.19	20.3	1.0	4.04	0.60	34.0	3.2	52.04	.18	22.0	1.0	18.55	.17	44.4	1.7
Oct. 6.9	27.29	.25	68.8	2.3	51.31	.23	19.3	0.6	4.64	0.71	30.8	3.1	52.22	.21	21.0	1.3	18.72	.22	42.7	1.9
16.9	27.54	.30	66.5	2.3	51.54	.27	18.7	0.2	5.35	0.83	27.7	2.7	52.43	.24	19.7	1.4	18.94	.25	40.8	2.0
26.8	27.84	.32	64.2	2.2	51.81	.30	18.5	0.4	6.18	0.92	25.0	2.4	52.67	.28	18.3	1.7	19.19	.28	38.8	2.0
Nov. 5.8	28.16	.36	62.0	2.1	52.11	.32	18.9	0.9	7.10	1.00	22.6	2.0	52.95	.30	16.6	1.8	19.47	.31	36.8	2.1
15.8	28.52	.38	59.9	1.9	52.43	.35	19.8	1.3	8.10	1.05	20.6	1.5	53.25	.31	14.8	1.9	19.78	.33	34.7	2.0
25.8	28.90	.39	58.0	1.6	52.78	.35	21.1	1.8	9.15	1.09	19.1	1.0	53.56	.33	12.9	1.9	20.11	.35	32.7	2.0
Dec. 5.7	29.29	.39	56.4	1.4	53.13	.35	22.9	2.2	10.24	1.09	18.1	0.3	53.89	.33	11.0	1.9	20.46	.35	30.7	1.7
15.7	29.68	.38	55.0	1.0	53.48	.33	25.1	2.5	11.33	1.06	17.8	0.2	54.22	.32	9.1	1.8	20.81	.35	29.0	1.5
25.7	30.06	.36	54.0	0.6	53.81	.30	27.6	2.7	12.39	0.99	18.0	0.8	54.54	.30	7.3	1.7	21.16	.32	27.5	1.3
35.7	30.42		53.4		54.11		30.3		13.38		18.8		54.84		5.6		21.48		26.2	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Argûs.				*l* Leonis.				δ² Chamæleontis.				46 Leonis Minoris.				Groombridge 1706.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 10 41		° ′ −59 11		h m 10 44		° ′ +11 2		h m 10 44		° ′ −80 2		h m 10 48		° ′ +34 42		h m 10 52		° ′ +78 15	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	26.37	.41	9.0	3.0	18.98	.29	30.1	1.6	60.86	1.02	21.1	2.7	3.20	.34	68.5	0.6	26.87	1.13	69.4	0.9
10.6	26.78	.35	12.0	3.3	19.27	.26	28.5	1.3	61.88	0.85	23.8	3.1	3.54	.31	67.9	0.3	28.00	1.01	70.3	1.5
20.6	27.13	.28	15.3	3.5	19.53	.22	27.2	1.1	62.73	0.66	26.9	3.5	3.85	.26	67.6	0.2	29.01	0.86	71.8	2.0
30.6	27.41	.20	18.8	3.7	19.75	.18	26.1	0.7	63.39	0.45	30.4	3.7	4.11	.21	67.8	0.6	29.87	0.68	73.8	2.5
Feb. 9.6	27.61	.12	22.5	3.7	19.93	.12	25.4	0.5	63.84	0.23	34.1	3.8	4.32	.15	68.4	0.9	30.55	0.48	76.3	2.8
19.5	27.73	.05	26.2	3.6	20.05	.08	24.9	0.2	64.07	0.03	37.9	3.9	4.47	.10	69.3	1.2	31.03	0.27	79.1	3.0
Mar. 1.5	27.78	.03	29.8	3.4	20.13	.04	24.7	0.0	64.10	0.17	41.8	3.8	4.57	.04	70.5	1.4	31.30	0.05	82.1	3.1
11.5	27.75	.09	33.2	3.3	20.17	.01	24.7	0.3	63.93	0.37	45.6	3.7	4.61	.01	71.9	1.6	31.35	0.15	85.2	3.0
21.5	27.66	.16	36.5	3.0	20.16	.05	25.0	0.4	63.56	0.55	49.3	3.4	4.60	.06	73.5	1.6	31.20	0.34	88.2	2.9
31.4	27.50	.21	39.5	2.6	20.11	.07	25.4	0.6	63.01	0.71	52.7	3.2	4.54	.09	75.1	1.7	30.86	0.52	91.1	2.7
Apr. 10.4	27.29	.25	42.1	2.3	20.04	.10	26.0	0.7	62.30	0.84	55.9	2.8	4.45	.12	76.8	1.5	30.34	0.65	93.8	2.3
20.4	27.04	.28	44.4	1.8	19.94	.11	26.7	0.7	61.46	0.96	58.7	2.3	4.33	.14	78.3	1.4	29.69	0.77	96.1	1.8
30.3	26.76	.31	46.2	1.3	19.83	.12	27.4	0.8	60.50	1.06	61.0	2.0	4.19	.16	79.7	1.2	28.92	0.85	97.9	1.4
May 10.3	26.45	.32	47.5	0.9	19.71	.12	28.2	0.7	59.44	1.12	63.0	1.4	4.03	.16	80.9	1.0	28.07	0.89	99.3	0.8
20.3	26.13	.34	48.4	0.4	19.59	.12	28.9	0.7	58.32	1.17	64.4	0.9	3.87	.16	81.9	0.7	27.18	0.90	100.1	0.2
30.3	25.79	.33	48.8	0.2	19.47	.12	29.6	0.6	57.15	1.18	65.3	0.3	3.71	.15	82.6	0.5	26.28	0.89	100.3	0.3
June 9.2	25.46	.32	48.6	0.6	19.35	.10	30.2	0.6	55.97	1.16	65.6	0.2	3.56	.14	83.1	0.1	25.39	0.84	100.0	0.8
19.2	25.14	.31	48.0	1.1	19.25	.09	30.8	0.5	54.81	1.13	65.4	0.7	3.42	.12	83.2	0.1	24.55	0.78	99.2	1.4
29.2	24.83	.28	46.9	1.6	19.16	.08	31.3	0.4	53.68	1.05	64.7	1.3	3.30	.10	83.1	0.4	23.77	0.69	97.8	1.8
July 9.2	24.55	.25	45.3	1.9	19.08	.06	31.7	0.3	52.63	0.96	63.4	1.8	3.20	.08	82.7	0.7	23.08	0.58	96.0	2.2
19.1	24.30	.21	43.4	2.3	19.02	.04	32.0	0.2	51.67	0.82	61.6	2.2	3.12	.06	82.0	0.9	22.50	0.46	93.8	2.7
29.1	24.09	.16	41.1	2.6	18.98	.02	32.2	0.1	50.85	0.66	59.4	2.5	3.06	.03	81.1	1.2	22.04	0.33	91.1	3.0
Aug. 8.1	23.93	.10	38.5	2.8	18.96	.01	32.3	0.1	50.19	0.49	56.9	2.9	3.03	.00	79.9	1.5	21.71	0.19	88.1	3.2
18.0	23.83	.04	35.7	2.9	18.97	.03	32.2	0.3	49.70	0.28	54.0	3.1	3.03	.03	78.4	1.6	21.52	0.05	84.9	3.4
28.0	23.79	.03	32.8	2.9	19.00	.06	31.9	0.5	49.42	0.06	50.9	3.1	3.06	.07	76.8	1.9	21.47	0.11	81.5	3.5
Sept. 7.0	23.82	.10	29.9	2.8	19.06	.09	31.4	0.7	49.36	0.16	47.8	3.1	3.13	.10	74.9	2.0	21.58	0.26	78.0	3.6
17.0	23.92	.17	27.1	2.5	19.15	.13	30.7	0.9	49.52	0.39	44.7	3.0	3.23	.14	72.9	2.2	21.84	0.41	74.4	3.6
26.9	24.09	.25	24.6	2.2	19.28	.16	29.8	1.1	49.91	0.61	41.7	2.7	3.37	.19	70.7	2.3	22.25	0.57	70.8	3.5
Oct. 6.9	24.34	.32	22.4	1.9	19.44	.20	28.7	1.3	50.52	0.81	39.0	2.4	3.56	.22	68.4	2.3	22.82	0.71	67.3	3.3
16.9	24.66	.38	20.5	1.3	19.64	.23	27.4	1.6	51.33	1.00	36.6	1.9	3.78	.26	66.1	2.4	23.53	0.85	64.0	3.0
26.9	25.04	.44	19.2	0.7	19.87	.26	25.8	1.7	52.33	1.14	34.7	1.3	4.04	.30	63.7	2.4	24.38	0.98	61.0	2.8
Nov. 5.8	25.48	.48	18.5	0.2	20.13	.29	24.1	1.9	53.47	1.25	33.4	0.7	4.34	.33	61.3	2.3	25.36	1.09	58.2	2.3
15.8	25.96	.50	18.3	0.5	20.42	.32	22.2	1.9	54.72	1.31	32.7	0.1	4.67	.36	59.0	2.1	26.45	1.18	55.9	1.8
25.8	26.46	.52	18.8	1.2	20.74	.33	20.3	2.0	56.03	1.34	32.6	0.6	5.03	.38	56.9	2.0	27.63	1.23	54.1	1.3
Dec. 5.7	26.98	.51	20.0	1.7	21.07	.33	18.3	2.0	57.37	1.29	33.2	1.3	5.41	.38	54.9	1.6	28.86	1.25	52.8	0.6
15.7	27.49	.49	21.7	2.3	21.40	.32	16.3	1.9	58.66	1.22	34.5	1.9	5.79	.38	53.3	1.3	30.11	1.24	52.2	0.1
25.7	27.98	.44	24.0	2.7	21.72	.31	14.4	1.7	59.88	1.11	36.4	2.4	6.17	.36	52.0	0.9	31.35	1.19	52.1	0.5
35.7	28.42		26.7		22.03		12.7		60.99		38.8		6.53		51.1		32.54		52.6	

FIXED STARS, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Majoris.				η Octantis.				ρ³ Leonis.				ψ Ursæ Majoris.				δ Leonis.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	10 57		+62 14		10 59		−84 4		11 2		+ 2 27		11 4		+45 0		11 9		+21 1	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	55.59	.54	75.7	0.4	69.48	1.74	57.4	2.5	6.48	.29	57.4	1.9	22.55	.39	19.0	0.4	6.38	.32	73.8	1.4
10.7	56.13	.50	76.1	0.9	71.22	1.48	59.9	2.9	6.77	.26	55.5	1.8	22.94	.36	18.6	0.1	6.70	.29	72.4	1.0
20.6	56.63	.43	77.0	1.4	72.70	1.18	62.8	3.3	7.03	.23	53.7	1.5	23.30	.31	18.7	0.6	6.99	.25	71.4	0.6
30.6	57.06	.34	78.4	1.8	73.88	0.85	66.1	3.6	7.26	.18	52.2	1.3	23.61	.26	19.3	1.0	7.24	.20	70.8	0.3
Feb. 9.6	57.40	.26	80.2	2.2	74.73	0.51	69.7	3.8	7.44	.14	50.9	1.0	23.87	.19	20.3	1.4	7.44	.16	70.5	0.0
19.5	57.66	.16	82.4	2.5	75.24	0.17	73.5	3.9	7.58	.09	49.9	0.8	24.06	.13	21.7	1.7	7.60	.11	70.5	0.4
Mar. 1.5	57.82	.06	84.9	2.7	75.41	0.17	77.4	3.8	7.67	.05	49.1	0.5	24.19	.06	23.4	2.0	7.71	.06	70.9	0.6
11.5	57.88	.03	87.6	2.7	75.24	0.50	81.2	3.8	7.72	.01	48.6	0.3	24.25	.00	25.4	2.1	7.77	.02	71.5	0.9
21.5	57.85	.12	90.3	2.7	74.74	0.80	85.0	3.5	7.73	.03	48.3	0.0	24.25	.05	27.5	2.1	7.79	.03	72.4	1.0
31.4	57.73	.18	93.0	2.5	73.94	1.08	88.5	3.4	7.70	.06	48.3	0.1	24.20	.10	29.6	2.1	7.76	.05	73.4	1.1
Apr. 10.4	57.55	.25	95.5	2.2	72.86	1.33	91.9	3.0	7.64	.08	48.4	0.4	24.10	.13	31.7	1.9	7.71	.09	74.5	1.1
20.4	57.30	.29	97.7	1.9	71.53	1.55	94.9	2.6	7.56	.10	48.8	0.4	23.97	.17	33.6	1.8	7.62	.10	75.6	1.2
30.4	57.01	.32	99.6	1.5	69.98	1.73	97.5	2.2	7.46	.11	49.2	0.5	23.80	.18	35.4	1.5	7.52	.12	76.8	1.0
May 10.3	56.69	.34	101.1	1.0	68.25	1.87	99.7	1.7	7.35	.11	49.7	0.6	23.62	.19	36.9	1.1	7.40	.12	77.8	1.0
20.3	56.35	.35	102.1	0.6	66.38	1.97	101.4	1.2	7.24	.12	50.3	0.7	23.43	.20	38.0	0.8	7.28	.13	78.8	0.8
30.3	56.00	.33	102.7	0.1	64.41	2.02	102.6	0.7	7.12	.11	51.0	0.7	23.23	.19	38.8	0.5	7.15	.12	79.6	0.7
June 9.2	55.67	.32	102.8	0.3	62.39	2.03	103.3	0.1	7.01	.10	51.7	0.7	23.04	.18	39.3	0.1	7.03	.12	80.3	0.5
19.2	55.35	.29	102.5	0.9	60.36	1.98	103.4	0.5	6.91	.10	52.4	0.6	22.86	.16	39.4	0.3	6.91	.11	80.8	0.4
29.2	55.06	.26	101.6	1.3	58.38	1.88	102.9	1.0	6.81	.09	53.0	0.7	22.70	.15	39.1	0.7	6.80	.09	81.2	0.1
July 9.2	54.80	.21	100.3	1.7	56.50	1.73	101.9	1.5	6.72	.07	53.7	0.6	22.55	.12	38.4	1.0	6.71	.08	81.3	0.0
19.1	54.59	.17	98.6	2.1	54.77	1.53	100.4	2.0	6.65	.05	54.3	0.6	22.43	.09	37.4	1.3	6.63	.06	81.3	0.3
29.1	54.42	.12	96.5	2.4	53.24	1.27	98.4	2.4	6.60	.04	54.9	0.4	22.34	.06	36.1	1.7	6.57	.04	81.0	0.5
Aug. 8.1	54.30	.06	94.1	2.7	51.97	0.98	96.0	2.7	6.56	.01	55.3	0.4	22.28	.03	34.4	1.9	6.53	.02	80.5	0.6
18.1	54.24	.00	91.4	2.9	50.99	0.64	93.3	3.0	6.55	.01	55.7	0.2	22.25	.01	32.5	2.2	6.51	.01	79.9	0.9
28.0	54.24	.07	88.5	3.1	50.35	0.28	90.3	3.1	6.56	.04	55.9	0.0	22.26	.04	30.3	2.4	6.52	.04	79.0	1.1
Sept. 7.0	54.31	.12	85.4	3.2	50.07	0.10	87.2	3.2	6.60	.07	55.9	0.2	22.30	.09	27.9	2.5	6.56	.06	77.9	1.3
17.0	54.43	.20	82.2	3.3	50.17	0.49	84.0	3.1	6.67	.10	55.7	0.4	22.39	.13	25.4	2.7	6.62	.11	76.6	1.5
26.9	54.63	.26	78.9	3.2	50.66	0.87	80.9	2.8	6.77	.14	55.3	0.7	22.52	.18	22.7	2.8	6.73	.14	75.1	1.7
Oct. 6.9	54.89	.33	75.7	3.2	51.53	1.22	78.1	2.5	6.91	.18	54.6	0.9	22.70	.23	19.9	2.8	6.87	.18	73.4	1.9
16.9	55.22	.40	72.5	3.0	52.75	1.54	75.6	2.1	7.09	.21	53.7	1.2	22.93	.28	17.1	2.7	7.05	.22	71.5	2.0
26.9	55.62	.46	69.5	2.8	54.29	1.79	73.5	1.6	7.30	.25	52.5	1.5	23.21	.32	14.4	2.7	7.27	.26	69.5	2.1
Nov. 5.8	56.08	.52	66.7	2.5	56.08	2.00	71.9	1.0	7.55	.28	51.0	1.7	23.53	.36	11.7	2.6	7.53	.29	67.4	2.2
15.8	56.60	.55	64.2	2.1	58.08	2.12	70.9	0.4	7.83	.31	49.3	1.9	23.89	.39	9.1	2.2	7.82	.32	65.2	2.2
25.8	57.15	.59	62.1	1.7	60.20	2.17	70.5	0.3	8.14	.32	47.4	2.0	24.28	.42	6.9	2.0	8.14	.34	63.0	2.1
Dec. 5.8	57.74	.61	60.4	1.2	62.37	2.15	70.8	1.0	8.46	.32	45.4	2.0	24.70	.43	4.9	1.6	8.48	.34	60.9	2.0
15.7	58.35	.60	59.2	0.6	64.52	2.03	71.8	1.6	8.78	.32	43.4	2.1	25.13	.43	3.3	1.2	8.82	.35	58.9	1.8
25.7	58.95	.57	58.6	0.0	66.55	1.87	73.4	2.1	9.10	.31	41.3	2.0	25.56	.41	2.1	0.7	9.17	.33	57.1	1.5
35.7	59.52		58.6		68.42		75.5		9.41		39.3		25.97		1.4		9.50		55.6	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ν Ursæ Majoris.				δ Crateris.				τ Leonis.				λ Draconis.				ξ Hydræ.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	11 13		+33 35		11 14		−14 16		11 23		+ 3 22		11 25		+69 50		11 28		−31 20	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	23.85	.35	77.1	0.9	38.43	.30	5.4	2.3	5.99	.31	26.7	2.0	49.08	.74	43.9	0.3	22.80	.32	3.2	2.5
10.7	24.20	.32	76.2	0.5	38.73	.27	7.7	2.4	6.30	.28	24.7	1.7	49.82	.68	44.2	0.8	23.12	.30	5.7	2.7
20.7	24.52	.28	75.7	0.1	39.00	.23	10.1	2.3	6.58	.24	23.0	1.6	50.50	.60	45.0	1.4	23.42	.26	8.4	2.8
30.6	24.80	.23	75.6	0.4	39.23	.19	12.4	2.1	6.82	.20	21.4	1.2	51.10	.50	46.4	1.9	23.68	.22	11.2	2.9
Feb. 9.6	25.03	.18	76.0	0.8	39.42	.15	14.5	2.0	7.02	.16	20.2	1.0	51.60	.39	48.3	2.3	23.90	.16	14.1	2.7
19.6	25.21	.12	76.8	1.1	39.57	.10	16.5	1.7	7.18	.11	19.2	0.8	51.99	.27	50.6	2.7	24.06	.12	16.8	2.6
Mar. 1.5	25.33	.07	77.9	1.3	39.67	.06	18.2	1.5	7.29	.07	18.4	0.4	52.26	.14	53.3	2.9	24.18	.07	19.4	2.5
11.5	25.40	.02	79.2	1.6	39.73	.02	19.7	1.3	7.36	.03	18.0	0.2	52.40	.02	56.2	2.9	24.25	.03	21.9	2.2
21.5	25.42	.03	80.8	1.6	39.75	.02	21.0	1.0	7.39	.00	17.8	0.0	52.42	.09	59.1	2.9	24.28	.02	24.1	2.0
31.5	25.39	.06	82.4	1.7	39.73	.05	22.0	0.8	7.39	.04	17.8	0.2	52.33	.21	62.0	2.8	24.26	.05	26.1	1.7
Apr. 10.4	25.33	.10	84.1	1.7	39.68	.08	22.8	0.5	7.35	.07	18.0	0.3	52.12	.29	64.8	2.6	24.21	.08	27.8	1.4
20.4	25.23	.12	85.8	1.5	39.60	.09	23.3	0.3	7.28	.08	18.3	0.5	51.83	.37	67.4	2.2	24.13	.10	29.2	1.2
30.4	25.11	.14	87.3	1.4	39.51	.11	23.6	0.0	7.20	.09	18.8	0.6	51.46	.43	69.6	1.8	24.03	.12	30.4	0.7
May 10.4	24.97	.15	88.7	1.2	39.40	.11	23.6	0.1	7.11	.11	19.4	0.6	51.03	.47	71.4	1.3	23.91	.13	31.1	0.5
20.3	24.82	.15	89.9	0.9	39.29	.12	23.5	0.4	7.00	.11	20.0	0.7	50.56	.49	72.7	0.8	23.78	.14	31.6	0.1
30.3	24.67	.15	90.8	0.6	39.17	.12	23.1	0.5	6.89	.11	20.7	0.7	50.07	.49	73.5	0.3	23.64	.15	31.7	0.2
June 9.3	24.52	.14	91.4	0.4	39.05	.12	22.6	0.7	6.78	.11	21.4	0.7	49.58	.48	73.8	0.2	23.49	.15	31.5	0.5
19.2	24.38	.13	91.8	0.0	38.93	.11	21.9	0.9	6.67	.10	22.1	0.7	49.10	.46	73.6	0.8	23.34	.14	31.0	0.8
29.2	24.25	.12	91.8	0.2	38.82	.10	21.0	1.0	6.57	.09	22.8	0.6	48.64	.42	72.8	1.2	23.20	.14	30.2	1.1
July 9.2	24.13	.10	91.6	0.5	38.72	.09	20.0	1.1	6.48	.08	23.4	0.6	48.22	.37	71.6	1.7	23.06	.13	29.1	1.3
19.2	24.03	.08	91.1	0.8	38.63	.08	18.9	1.2	6.40	.07	24.0	0.5	47.85	.32	69.9	2.2	22.93	.11	27.8	1.5
29.1	23.95	.05	90.3	1.1	38.55	.05	17.7	1.2	6.33	.05	24.5	0.4	47.53	.26	67.7	2.5	22.82	.09	26.3	1.7
Aug. 8.1	23.90	.03	89.2	1.3	38.50	.03	16.5	1.1	6.28	.03	24.9	0.2	47.27	.18	65.2	2.8	22.73	.07	24.6	1.8
18.1	23.87	.00	87.9	1.6	38.47	.01	15.4	1.1	6.25	.01	25.1	0.1	47.09	.10	62.4	3.1	22.66	.04	22.8	1.9
28.1	23.87	.03	86.3	1.8	38.46	.02	14.3	1.0	6.24	.02	25.2	0.0	46.99	.02	59.3	3.3	22.62	.00	20.9	1.8
Sept. 7.0	23.90	.07	84.5	2.0	38.48	.05	13.3	0.8	6.26	.05	25.2	0.3	46.97	.07	56.0	3.5	22.62	.03	19.1	1.7
17.0	23.97	.11	82.5	2.1	38.53	.09	12.5	0.6	6.31	.08	24.9	0.5	47.04	.16	52.5	3.6	22.65	.08	17.4	1.5
27.0	24.08	.15	80.4	2.4	38.62	.13	11.9	0.3	6.39	.12	24.4	0.7	47.20	.25	48.9	3.5	22.73	.12	15.9	1.2
Oct. 6.9	24.23	.19	78.0	2.4	38.75	.17	11.6	0.1	6.51	.16	23.7	1.0	47.45	.35	45.4	3.5	22.85	.17	14.7	0.9
16.9	24.42	.24	75.6	2.5	38.92	.21	11.7	0.4	6.67	.20	22.7	1.3	47.80	.45	41.9	3.3	23.02	.22	13.8	0.5
26.9	24.66	.27	73.1	2.5	39.13	.25	12.1	0.7	6.87	.24	21.4	1.5	48.25	.53	38.6	3.1	23.24	.26	13.3	0.1
Nov. 5.9	24.93	.32	70.6	2.5	39.38	.28	12.8	1.2	7.11	.27	19.9	1.7	48.78	.61	35.5	2.8	23.50	.30	13.2	0.5
15.8	25.25	.34	68.1	2.3	39.66	.31	14.0	1.4	7.38	.29	18.2	1.9	49.39	.68	32.7	2.4	23.80	.33	13.7	0.8
25.8	25.59	.36	65.8	2.1	39.97	.32	15.4	1.8	7.67	.32	16.3	2.0	50.07	.73	30.3	1.9	24.13	.35	14.5	1.4
Dec. 5.8	25.95	.38	63.7	1.9	40.29	.33	17.2	2.0	7.99	.33	14.3	2.1	50.80	.76	28.4	1.4	24.48	.36	15.9	1.7
15.7	26.33	.38	61.8	1.5	40.62	.33	19.2	2.2	8.32	.32	12.2	2.1	51.56	.78	27.0	0.8	24.84	.36	17.6	2.1
25.7	26.71	.36	60.3	1.2	40.95	.31	21.4	2.3	8.64	.32	10.1	2.0	52.34	.76	26.2	0.2	25.20	.34	19.7	2.4
35.7	27.07		59.1		41.26		23.7		8.96		8.1		53.10		26.0		25.54		22.1	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	υ Leonis.				χ Ursæ Majoris.				β Leonis.				γ Ursæ Majoris.				π Virginis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 11 32		° ′ − 0 18		h m 11 41		° ′ +48 17		h m 11 44		° ′ +15 5		h m 11 48		° ′ +54 12		h m 11 56		° ′ + 7 7	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	7.92	.31	15.2	2.0	4.72	.43	49.9	0.6	15.52	.32	48.1	1.6	52.58	.48	49.3	0.6	2.92	.32	78.5	1.9
10.7	8.23	.28	17.2	1.9	5.15	.40	49.3	0.2	15.84	.30	46.5	1.5	53.06	.45	48.7	0.0	3.24	.30	76.6	1.7
20.7	8.51	.24	19.1	1.7	5.55	.36	49.1	0.4	16.14	.27	45.0	1.0	53.51	.41	48.7	0.6	3.54	.27	74.9	1.5
30.6	8.75	.21	20.8	1.5	5.91	.30	49.5	0.9	16.41	.23	44.0	0.8	53.92	.35	49.3	1.1	3.81	.23	73.4	1.1
Feb. 9.6	8.96	.17	22.3	1.2	6.21	.25	50.4	1.4	16.64	.18	43.2	0.4	54.27	.29	50.4	1.6	4.04	.19	72.3	0.9
19.6	9.13	.12	23.5	1.0	6.46	.19	51.8	1.8	16.82	.14	42.8	0.0	54.56	.22	52.0	1.9	4.23	.14	71.4	0.6
Mar. 1.6	9.25	.08	24.5	0.7	6.65	.11	53.6	2.0	16.96	.10	42.8	0.2	54.78	.14	53.9	2.3	4.37	.11	70.8	0.2
11.5	9.33	.04	25.2	0.4	6.76	.06	55.6	2.2	17.06	.05	43.0	0.5	54.92	.07	56.2	2.5	4.48	.06	70.6	0.0
21.5	9.37	.00	25.6	0.2	6.82	.01	57.8	2.4	17.11	.01	43.5	0.7	54.99	.01	58.7	2.6	4.54	.03	70.6	0.2
31.5	9.37	.03	25.8	0.0	6.81	.06	60.2	2.3	17.12	.02	44.2	0.8	54.98	.06	61.3	2.5	4.57	.01	70.8	0.5
Apr. 10.4	9.34	.06	25.8	0.2	6.75	.11	62.5	2.3	17.10	.05	45.0	1.0	54.92	.12	63.8	2.5	4.56	.04	71.3	0.5
20.4	9.28	.07	25.6	0.3	6.64	.14	64.8	2.1	17.05	.08	46.0	1.0	54.80	.16	66.3	2.2	4.52	.06	71.8	0.7
30.4	9.21	.09	25.3	0.4	6.50	.17	66.9	1.8	16.97	.09	47.0	1.0	54.64	.20	68.5	2.0	4.46	.07	72.5	0.8
May 10.4	9.12	.10	24.9	0.6	6.33	.19	68.7	1.5	16.88	.10	48.0	1.0	54.44	.23	70.5	1.6	4.39	.09	73.3	0.8
20.3	9.02	.11	24.3	0.6	6.14	.21	70.2	1.2	16.78	.12	49.0	0.9	54.21	.24	72.1	1.2	4.30	.10	74.1	0.8
30.3	8.91	.11	23.7	0.7	5.93	.21	71.4	0.7	16.66	.11	49.9	0.8	53.97	.25	73.3	0.8	4.20	.11	74.9	0.7
June 9.3	8.80	.11	23.0	0.6	5.72	.20	72.1	0.4	16.55	.11	50.7	0.7	53.72	.25	74.1	0.4	4.09	.11	75.6	0.8
19.3	8.69	.10	22.4	0.7	5.52	.20	72.5	0.0	16.44	.12	51.4	0.6	53.47	.24	74.5	0.1	3.98	.10	76.4	0.6
29.2	8.59	.10	21.7	0.7	5.32	.19	72.5	0.5	16.32	.10	52.0	0.4	53.23	.23	74.4	0.6	3.88	.10	77.0	0.6
July 9.2	8.49	.08	21.0	0.7	5.13	.17	72.0	0.9	16.22	.10	52.4	0.2	53.00	.20	73.8	1.0	3.78	.10	77.6	0.4
19.2	8.41	.08	20.3	0.6	4.96	.14	71.1	1.2	16.12	.08	52.6	0.1	52.80	.19	72.8	1.4	3.68	.09	78.0	0.4
29.1	8.33	.06	19.7	0.6	4.82	.12	69.9	1.6	16.04	.07	52.7	0.1	52.61	.15	71.4	1.8	3.59	.07	78.4	0.2
Aug. 8.1	8.27	.04	19.1	0.5	4.70	.08	68.3	2.0	15.97	.05	52.6	0.4	52.46	.11	69.6	2.1	3.52	.06	78.6	0.1
18.1	8.23	.01	18.6	0.3	4.62	.05	66.3	2.2	15.92	.02	52.2	0.5	52.35	.08	67.5	2.5	3.46	.04	78.7	0.1
28.1	8.22	.01	18.3	0.1	4.57	.01	64.1	2.5	15.90	.00	51.7	0.8	52.27	.04	65.0	2.7	3.42	.01	78.6	0.3
Sept. 7.0	8.23	.04	18.2	0.0	4.56	.03	61.6	2.7	15.90	.02	50.9	1.0	52.23	.02	62.3	3.0	3.41	.02	78.3	0.5
17.0	8.27	.07	18.2	0.3	4.59	.08	58.9	2.9	15.92	.07	49.9	1.2	52.25	.07	59.3	3.1	3.43	.05	77.8	0.7
27.0	8.34	.11	18.5	0.5	4.67	.13	56.0	3.1	15.99	.10	48.7	1.4	52.32	.13	56.2	3.3	3.48	.09	77.1	1.0
Oct. 7.0	8.45	.16	19.0	0.8	4.80	.18	52.9	3.0	16.09	.14	47.3	1.6	52.45	.19	52.9	3.3	3.57	.13	76.1	1.2
16.9	8.61	.19	19.8	1.1	4.98	.24	49.9	3.1	16.23	.18	45.7	1.9	52.64	.25	49.6	3.3	3.70	.17	74.9	1.5
26.9	8.80	.23	20.9	1.3	5.22	.29	46.8	3.1	16.41	.23	43.8	2.0	52.89	.31	46.3	3.1	3.87	.21	73.4	1.7
Nov. 5.9	9.03	.26	22.2	1.6	5.51	.34	43.7	2.8	16.64	.26	41.8	2.2	53.20	.37	43.2	3.0	4.08	.25	71.7	1.9
15.9	9.29	.29	23.8	1.9	5.85	.39	40.9	2.7	16.90	.29	39.6	2.2	53.57	.41	40.2	2.8	4.33	.28	69.8	2.0
25.8	9.58	.31	25.7	1.9	6.24	.42	38.2	2.3	17.19	.31	37.4	2.2	53.98	.46	37.4	2.3	4.61	.30	67.8	2.2
Dec. 5.8	9.89	.33	27.6	2.1	6.66	.44	35.9	2.0	17.50	.34	35.2	2.2	54.44	.48	35.1	2.0	4.91	.33	65.6	2.1
15.8	10.22	.33	29.7	2.2	7.10	.44	33.9	1.5	17.84	.33	33.0	2.1	54.92	.49	33.1	1.5	5.24	.33	63.5	2.1
25.7	10.55	.32	31.9	2.1	7.54	.44	32.4	1.0	18.17	.33	30.9	1.8	55.41	.50	31.6	0.9	5.57	.33	61.4	2.1
35.7	10.87		34.0		7.98		31.4		18.50		29.1		55.91		30.7		5.90		59.3	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*o* Virginis.				*ε* Corvi.				4 Draconis (H.).				*γ* Corvi.				2 Canum Venat.			
	Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.	
	h m 12 0		° ′ + 9 14		h m 12 5		° ′ −22 5		h m 12 7		° ′ +78 7		h m 12 10		° ′ −17 1		h m 12 11		° ′ +41 10	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	24.79	.32	77.5	1.9	17.12	.33	38.7	2.3	46.04	1.19	63.1	0.2	57.91	.33	2.8	2.3	24.31	.39	50.0	1.2
10.7	25.11	.30	75.6	1.7	17:45	.31	41.0	2.4	47.23	1.15	62.9	0.5	58.24	.30	5.1	2.3	24.70	.38	48.8	0.7
20.7	25.41	.27	73.9	1.4	17.76	.27	43.4	2.4	48.38	1.05	63.4	1.2	58.54	.28	7.4	2.2	25.08	.35	48.1	0.2
30.7	25.68	.24	72.5	1.0	18.03	.24	45.8	2.4	49.43	0.93	64.6	1.7	58.82	.24	9.6	2.2	25.43	.30	47.9	0.4
Feb. 9.6	25.92	.20	71.5	0.8	18.27	.20	48.2	2.3	50.36	0.77	66.3	2.3	59.06	.20	11.8	2.1	25.73	.26	48.3	0.8
19.6	26.12	.15	70.7	0.4	18.47	.16	50.5	2.1	51.13	0.59	68.6	2.6	59.26	.16	13.9	1.9	25.99	.20	49.1	1.3
Mar. 1.6	26.27	.11	70.3	0.2	18.63	.11	52.6	2.0	51.72	0.39	71.2	2.9	59.42	.12	15.8	1.6	26.19	.15	50.4	1.6
11.5	26.38	.07	70.1	0.2	18.74	.08	54.6	1.7	52.11	0.19	74.1	3.1	59.54	.08	17.4	1.5	26.34	.09	52.0	1.9
21.5	26.45	.02	70.3	0.4	18.82	.03	56.3	1.5	52.30	0.01	77.2	3.1	59.62	.04	18.9	1.2	26.43	.04	53.9	2.1
31.5	26.47	.00	70.7	0.5	18.85	.00	57.8	1.3	52.29	0.20	80.3	3.1	59.66	.00	20.1	1.0	26.47	.01	56.0	2.1
Apr. 10.5	26.47	.03	71.2	0.7	18.85	.03	59.1	1.1	52.09	0.38	83.4	2.8	59.66	.02	21.1	0.8	26.46	.05	58.1	2.2
20.4	26.44	.06	71.9	0.8	18.82	.06	60.2	0.8	51.71	0.53	86.2	2.6	59.64	.05	21.9	0.5	26.41	.09	60.3	2.1
30.4	26.38	.08	72.7	0.9	18.76	.08	61.0	0.5	51.18	0.66	88.8	2.2	59.59	.06	22.4	0.3	26.32	.12	62.4	1.9
May 10.4	26.30	.09	73.6	0.8	18.68	.09	61.5	0.3	50.52	0.76	91.0	1.7	59.53	.09	22.7	0.1	26.20	.14	64.3	1.7
20.4	26.21	.09	74.4	0.9	18.59	.10	61.8	0.1	49.76	0.84	92.7	1.2	59.44	.10	22.8	0.1	26.06	.16	66.0	1.4
30.3	26.12	.11	75.3	0.8	18.49	.12	61.9	0.2	48.92	0.88	93.9	0.7	59.34	.10	22.7	0.3	25.90	.16	67.4	1.1
June 9.3	26.01	.11	76.1	0.7	18.37	.12	61.7	0.4	48.04	0.89	94.6	0.1	59.24	.12	22.4	0.4	25.74	.18	68.5	0.7
19.3	25.90	.11	76.8	0.6	18.25	.13	61.3	0.7	47.15	0.89	94.7	0.4	59.12	.11	22.0	0.6	25.56	.17	69.2	0.4
29.2	25.79	.10	77.4	0.6	18.12	.12	60.6	0.8	46.26	0.86	94.3	1.0	59.01	.12	21.4	0.8	25.39	.16	69.6	0.1
July 9.2	25.69	.10	78.0	0.4	18.00	.12	59.8	0.9	45.40	0.80	93.3	1.5	58.89	.11	20.6	0.9	25.23	.16	69.5	0.4
19.2	25.59	.09	78.4	0.3	17.88	.11	58.9	1.2	44.60	0.74	91.8	1.9	58.78	.11	19.7	1.0	25.07	.15	69.1	0.7
29.2	25.50	.08	78.7	0.2	17.77	.11	57.7	1.2	43.86	0.64	89.9	2.4	58.67	.10	18.7	1.1	24.92	.12	68.4	1.2
Aug. 8.1	25.42	.06	78.9	0.1	17.66	.08	56.5	1.3	43.22	0.53	87.5	2.8	58.57	.08	17.6	1.1	24.80	.11	67.2	1.5
18.1	25.36	.04	78.8	0.2	17.58	.06	55.2	1.3	42.69	0.42	84.7	3.2	58.49	.06	16.5	1.0	24.69	.08	65.7	1.8
28.1	25.32	.02	78.6	0.4	17.52	.03	53.9	1.3	42.27	0.28	81.5	3.4	58.43	.04	15.5	1.0	24.61	.04	63.9	2.1
Sept. 7.1	25.30	.01	78.2	0.6	17.49	.00	52.6	1.2	41.99	0.14	78.1	3.6	58.39	.00	14.5	0.9	24.57	.01	61.8	2.3
17.0	25.31	.05	77.6	0.9	17.49	.04	51.4	1.0	41.85	0.01	74.5	3.7	58.39	.03	13.6	0.7	24.56	.03	59.5	2.6
27.0	25.36	.08	76.7	1.1	17.53	.08	50.4	0.7	41.86	0.17	70.8	3.8	58.42	.08	12.9	0.5	24.59	.08	56.9	2.8
Oct. 7.0	25.44	.13	75.6	1.3	17.61	.13	49.7	0.5	42.03	0.33	67.0	3.7	58.50	.12	12.4	0.2	24.67	.13	54.1	3.0
16.9	25.57	.16	74.3	1.6	17.74	.17	49.2	0.2	42.36	0.50	63.3	3.7	58.62	.16	12.2	0.1	24.80	.18	51.1	3.0
26.9	25.73	.21	72.7	1.8	17.91	.21	49.0	0.2	42.86	0.65	59.6	3.4	58.78	.20	12.3	0.5	24.98	.23	48.1	3.0
Nov. 5.9	25.94	.25	70.9	2.0	18.12	.26	49.2	0.6	43.51	0.80	56.2	3.2	58.98	.25	12.8	0.8	25.21	.28	45.1	3.0
15.9	26.19	.28	68.9	2.1	18.38	.30	49.8	1.0	44.31	0.95	53.0	2.8	59.23	.29	13.6	1.1	25.49	.33	42.1	2.8
25.8	26.47	.30	66.8	2.2	18.68	.32	50.8	1.4	45.26	1.05	50.2	2.3	59.52	.31	14.7	1.5	25.82	.36	39.3	2.6
Dec. 5.8	26.77	.33	64.6	2.2	19.00	.33	52.2	1.7	46.31	1.14	47.9	1.7	59.83	.33	16.2	1.8	26.18	.38	36.7	2.4
15.8	27.10	.33	62.4	2.1	19.33	.35	53.9	2.0	47.45	1.20	46.2	1.2	60.16	.33	18.0	2.0	26.56	.41	34.3	1.9
25.8	27.43	.33	60.3	2.0	19.68	.34	55.9	2.2	48.65	1.21	45.0	0.6	60.49	.34	20.0	2.2	26.97	.40	32.4	1.5
35.7	27.76		58.3		20.02		58.1		49.86		44.4		60.83		22.2		27.37		30.9	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Chamæleontis.				η Virginis.				α^1 Crucis.				δ^2 Corvi.				β Canum Venat.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m 12 12		° ′ −78 47		h m 12 15		° ′ − 0 8		h m 12 21		° ′ −62 34		h m 12 24		° ′ −15 59		h m 12 29		° ′ +41 51	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	51.69	1.18	0.9	1.7	5.32	.32	36.9	2.0	22.33	.56	19.3	1.9	59.56	.33	22.6	2.2	15.92	.40	55.7	1.3
10.7	52.87	1.09	2.6	2.2	5.64	.30	38.9	2.0	22.89	.53	21.2	2.4	59.89	.31	24.8	2.2	16.32	.38	54.4	0.8
20.7	53.96	0.98	4.8	2.8	5.94	.28	40.9	1.7	23.42	.48	23.6	2.8	60.20	.28	27.0	2.2	16.70	.36	53.6	0.3
30.7	54.94	0.84	7.6	3.1	6.22	.24	42.6	1.5	23.90	.42	26.4	3.0	60.48	.25	29.2	2.1	17.06	.32	53.3	0.2
Feb. 9.6	55.78	0.69	10.7	3.4	6.46	.20	44.1	1.3	24.32	.35	29.4	3.3	60.73	.22	31.3	2.0	17.38	.28	53.5	0.8
19.6	56.47	0.52	14.1	3.6	6.66	.16	45.4	1.0	24.67	.27	32.7	3.5	60.95	.17	33.3	1.9	17.66	.22	54.3	1.2
Mar. 1.6	56.99	0.35	17.7	3.7	6.82	.13	46.4	0.7	24.94	.20	36.2	3.5	61.12	.13	35.2	1.6	17.88	.17	55.5	1.6
11.5	57.34	0.18	21.4	3.8	6.95	.08	47.1	0.5	25.14	.13	39.7	3.4	61.25	.09	36.8	1.4	18.05	.11	57.1	1.9
21.5	57.52	0.01	25.2	3.8	7.03	.04	47.6	0.2	25.27	.05	43.1	3.4	61.34	.06	38.2	1.2	18.16	.06	59.0	2.1
31.5	57.53	0.16	29.0	3.6	7.07	.01	47.8	0.0	25.32	.01	46.5	3.3	61.40	.02	39.4	0.9	18.22	.01	61.1	2.2
Apr. 10.5	57.37	0.31	32.6	3.4	7.08	.01	47.8	0.2	25.31	.08	49.8	3.0	61.42	.01	40.3	0.7	18.23	.03	63.3	2.3
20.4	57.06	0.45	36.0	3.2	7.07	.04	47.6	0.4	25.23	.14	52.8	2.7	61.41	.03	41.0	0.5	18.20	.08	65.6	2.2
30.4	56.61	0.59	39.2	2.8	7.03	.06	47.2	0.5	25.09	.19	55.5	2.4	61.38	.06	41.5	0.3	18.12	.10	67.8	2.1
May 10.4	56.02	0.71	42.0	2.4	6.97	.08	46.7	0.5	24.90	.23	57.9	2.0	61.32	.07	41.8	0.1	18.02	.14	69.9	1.8
20.4	55.31	0.80	44.4	2.0	6.89	.09	46.2	0.6	24.67	.28	59.9	1.5	61.25	.09	41.9	0.1	17.88	.15	71.7	1.6
30.3	54.51	0.89	46.4	1.5	6.80	.10	45.6	0.7	24.39	.31	61.4	1.2	61.16	.10	41.8	0.3	17.73	.17	73.3	1.2
June 9.3	53.62	0.94	47.9	1.0	6.70	.10	44.9	0.7	24.08	.33	62.6	0.6	61.06	.11	41.5	0.4	17.56	.17	74.5	0.9
19.3	52.68	0.98	48.9	0.4	6.60	.11	44.2	0.7	23.75	.35	63.2	0.2	60.95	.11	41.1	0.6	17.39	.18	75.4	0.5
29.2	51.70	0.99	49.3	0.1	6.49	.11	43.5	0.7	23.40	.36	63.4	0.3	60.84	.12	40.5	0.7	17.21	.18	75.9	0.2
July 9.2	50.71	0.97	49.2	0.7	6.38	.10	42.8	0.6	23.04	.36	63.1	0.8	60.72	.12	39.8	0.8	17.03	.17	76.1	0.3
19.2	49.74	0.93	48.5	1.2	6.28	.10	42.2	0.5	22.68	.34	62.3	1.3	60.60	.11	39.0	0.9	16.86	.16	75.8	0.7
29.2	48.81	0.84	47.3	1.7	6.18	.08	41.7	0.5	22.34	.31	61.0	1.7	60.49	.11	38.1	1.0	16.70	.15	75.1	1.0
Aug. 8.1	47.97	0.74	45.6	2.2	6.10	.08	41.2	0.4	22.03	.28	59.3	2.1	60.38	.09	37.1	1.0	16.55	.13	74.1	1.4
18.1	47.23	0.61	43.4	2.5	6.02	.05	40.8	0.3	21.75	.23	57.2	2.3	60.29	.07	36.1	1.0	16.42	.10	72.7	1.8
28.1	46.62	0.44	40.9	2.8	5.97	.03	40.5	0.1	21.52	.17	54.9	2.6	60.22	.04	35.1	0.9	16.32	.07	70.9	2.1
Sept. 7.1	46.18	0.26	38.1	3.0	5.94	.00	40.4	0.1	21.35	.09	52.3	2.7	60.18	.02	34.2	0.8	16.25	.03	68.8	2.3
17.0	45.92	0.05	35.1	3.0	5.94	.03	40.5	0.3	21.26	.01	49.6	2.7	60.16	.02	33.4	0.6	16.22	.00	66.5	2.6
27.0	45.87	0.15	32.1	3.1	5.97	.07	40.8	0.5	21.25	.07	46.9	2.7	60.18	.06	32.8	0.4	16.22	.05	63.9	2.8
Oct. 7.0	46.02	0.36	29.0	2.9	6.04	.11	41.3	0.8	21.32	.17	44.2	2.5	60.24	.10	32.4	0.2	16.27	.11	61.1	3.0
16.9	46.38	0.57	26.1	2.6	6.15	.15	42.1	1.1	21.49	.26	41.7	2.1	60.34	.15	32.2	0.2	16.38	.15	58.1	3.1
26.9	46.95	0.76	23.5	2.2	6.30	.19	43.2	1.3	21.75	.35	39.6	1.8	60.49	.19	32.4	0.5	16.53	.21	55.0	3.1
Nov. 5.9	47.71	0.93	21.3	1.7	6.49	.24	44.5	1.6	22.10	.43	37.8	1.3	60.68	.24	32.9	0.8	16.74	.26	51.9	3.1
15.9	48.64	1.06	19.6	1.2	6.73	.27	46.1	1.8	22.53	.49	36.5	0.7	60.92	.27	33.7	1.1	17.00	.31	48.8	3.0
25.8	49.70	1.16	18.4	0.5	7.00	.30	47.9	2.0	23.02	.54	35.8	0.2	61.19	.31	34.8	1.5	17.31	.35	45.8	2.7
Dec. 5.8	50.86	1.22	17.9	0.1	7.30	.32	49.9	2.1	23.56	.57	35.6	0.4	61.50	.32	36.3	1.8	17.66	.37	43.1	2.5
15.8	52.08	1.23	18.0	0.7	7.62	.32	52.0	2.1	24.13	.58	36.0	1.0	61.82	.34	38.1	1.9	18.03	.40	40.6	2.1
25.8	53.31	1.21	18.7	1.3	7.94	.33	54.1	2.1	24.71	.58	37.0	1.6	62.16	.33	40.0	2.1	18.43	.40	38.5	1.7
35.7	54.52		20.0		8.27		56.2		25.29		38.6		62.49		42.1		18.83		36.8	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Corvi.				κ Draconis.				γ Virginis (mean).				31 Comæ Berenices.				32^1 Camelop. (H.).			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	12 29		−22 52		12 29		+70 17		12 36		− 0 55		12 47		+28 2		12 48		+83 54	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	26.45	.34	25.5	2.1	26.70	.77	68.1	0.6	53.25	.32	57.9	2.1	6.31	.35	62.3	1.8	20.10	2.21	71.1	0.6
10.7	26.79	.32	27.6	2.3	27.47	.74	67.5	0.0	53.57	.31	60.0	2.0	6.66	.35	60.5	1.4	22.31	2.19	70.5	0.1
20.7	27.11	.30	29.9	2.4	28.21	.70	67.5	0.6	53.88	.28	62.0	1.8	7.01	.32	59.1	0.9	24.50	2.09	70.6	0.7
30.7	27.41	.26	32.3	2.3	28.91	.63	68.1	1.3	54.16	.26	63.8	1.5	7.33	.29	58.2	0.4	26.59	1.92	71.3	1.4
Feb. 9.6	27.67	.22	34.6	2.3	29.54	.54	69.4	1.8	54.42	.22	65.3	1.3	7.62	.26	57.8	0.0	28.51	1.69	72.7	2.0
19.6	27.89	.18	36.9	2.1	30.08	.44	71.2	2.3	54.64	.18	66.6	1.1	7.88	.21	57.8	0.4	30.20	1.39	74.7	2.4
Mar. 1.6	28.07	.14	39.0	2.0	30.52	.31	73.5	2.6	54.82	.14	67.7	0.7	8.09	.17	58.2	0.8	31.59	1.05	77.1	2.8
11.6	28.21	.10	41.0	1.8	30.83	.20	76.1	2.9	54.96	.10	68.4	0.5	8.26	.12	59.0	1.2	32.64	0.67	79.9	3.0
21.5	28.31	.06	42.8	1.6	31.03	.07	79.0	3.0	55.06	.07	68.9	0.3	8.38	.08	60.2	1.4	33.31	0.29	82.9	3.1
31.5	28.37	.03	44.4	1.3	31.10	.04	82.0	3.1	55.13	.03	69.2	0.0	8.46	.04	61.6	1.6	33.60	0.10	86.0	3.2
Apr. 10.5	28.40	.01	45.7	1.1	31.06	.16	85.1	2.9	55.16	.00	69.2	0.2	8.50	.00	63.2	1.8	33.50	0.46	89.2	3.0
20.4	28.39	.03	46.8	0.9	30.90	.25	88.0	2.7	55.16	.02	69.0	0.3	8.50	.03	65.0	1.8	33.04	0.80	92.2	2.8
30.4	28.36	.05	47.7	0.6	30.65	.33	90.7	2.4	55.14	.04	68.7	0.4	8.47	.06	66.8	1.7	32.24	1.11	95.0	2.5
May 10.4	28.31	.08	48.3	0.4	30.32	.40	93.1	2.0	55.10	.07	68.3	0.6	8.41	.08	68.5	1.6	31.13	1.37	97.5	2.1
20.4	28.23	.09	48.7	0.2	29.92	.45	95.1	1.6	55.03	.07	67.7	0.6	8.33	.10	70.1	1.5	29.76	1.57	99.6	1.6
30.3	28.14	.11	48.9	0.0	29.47	.49	96.7	1.1	54.96	.09	67.1	0.6	8.23	.12	71.6	1.2	28.19	1.72	101.2	1.1
June 9.3	28.03	.12	48.9	0.3	28.98	.51	97.8	0.6	54.87	.10	66.5	0.7	8.11	.12	72.8	1.1	26.47	1.83	102.3	0.5
19.3	27.91	.12	48.6	0.5	28.47	.51	98.4	0.0	54.77	.11	65.8	0.7	7.99	.14	73.9	0.7	24.64	1.87	102.8	0.0
29.3	27.79	.13	48.1	0.7	27.96	.51	98.4	0.5	54.66	.11	65.1	0.7	7.85	.13	74.6	0.5	22.77	1.87	102.8	0.5
July 9.2	27.66	.12	47.4	0.8	27.45	.48	97.9	1.1	54.55	.11	64.4	0.6	7.72	.14	75.1	0.2	20.90	1.82	102.3	1.1
19.2	27.54	.13	46.6	1.0	26.97	.45	96.8	1.5	54.44	.11	63.8	0.5	7.58	.13	75.3	0.2	19.08	1.72	101.2	1.7
29.2	27.41	.11	45.6	1.2	26.52	.41	95.3	2.0	54.33	.10	63.3	0.5	7.45	.13	75.1	0.4	17.36	1.60	99.5	2.1
Aug. 8.1	27.30	.10	44.4	1.2	26.11	.36	93.3	2.4	54.23	.09	62.8	0.4	7.32	.11	74.7	0.8	15.76	1.42	97.4	2.5
18.1	27.20	.09	43.2	1.2	25.75	.29	90.9	2.8	54.14	.07	62.4	0.3	7.21	.09	73.9	1.0	14.34	1.22	94.9	3.0
28.1	27.11	.05	42.0	1.3	25.46	.21	88.1	3.1	54.07	.05	62.1	0.2	7.12	.07	72.9	1.4	13.12	0.98	91.9	3.2
Sept. 7.1	27.06	.02	40.7	1.1	25.25	.14	85.0	3.4	54.02	.03	61.9	0.1	7.05	.04	71.5	1.6	12.14	0.73	88.7	3.5
17.0	27.04	.01	39.6	1.0	25.11	.04	81.6	3.5	53.99	.01	62.0	0.2	7.01	.01	69.9	1.9	11.41	0.45	85.2	3.7
27.0	27.05	.05	38.6	0.9	25.07	.05	78.1	3.7	54.00	.05	62.2	0.5	7.00	.03	68.0	2.2	10.96	0.14	81.5	3.9
Oct. 7.0	27.10	.11	37.7	0.5	25.12	.15	74.4	3.8	54.05	.09	62.7	0.8	7.03	.08	65.8	2.4	10.82	0.17	77.6	3.8
17.0	27.21	.15	37.2	0.3	25.27	.26	70.6	3.7	54.14	.13	63.5	1.0	7.11	.12	63.4	2.6	10.99	0.49	73.8	3.8
26.9	27.36	.19	36.9	0.1	25.53	.37	66.9	3.6	54.27	.17	64.5	1.3	7.23	.17	60.8	2.6	11.48	0.82	70.0	3.7
Nov. 5.9	27.55	.24	37.0	0.4	25.90	.47	63.3	3.4	54.44	.22	65.8	1.5	7.40	.22	58.2	2.8	12.30	1.13	66.3	3.5
15.9	27.79	.29	37.4	0.9	26.37	.56	59.9	3.1	54.66	.25	67.3	1.7	7.62	.26	55.4	2.8	13.43	1.43	62.8	3.1
25.8	28.08	.31	38.3	1.2	26.93	.64	56.8	2.7	54.91	.29	69.0	2.0	7.88	.30	52.6	2.7	14.86	1.69	59.7	2.6
Dec. 5.8	28.39	.33	39.5	1.6	27.57	.71	54.1	2.2	55.20	.31	71.0	2.0	8.18	.33	49.9	2.6	16.55	1.91	57.1	2.2
15.8	28.72	.35	41.1	1.8	28.28	.75	51.9	1.6	55.51	.33	73.0	2.2	8.51	.35	47.3	2.3	18.46	2.09	54.9	1.7
25.8	29.07	.34	42.9	2.1	29.03	.77	50.3	1.1	55.84	.32	75.2	2.1	8.86	.36	45.0	2.0	20.55	2.19	53.2	1.0
35.7	29.41		45.0		29.80		49.2		56.16		77.3		9.22		43.0		22.74		52.2	

FIXED STARS, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Canum Venat.				δ Muscæ.				ε Virginis.				θ Virginis.				20 Canum Venat.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	12 51		+38 49		12 55		−71 2		12 57		+11 27		13 5		− 5 2		13 13		+41 3	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.8	36.84	.39	25.1	1.6	47.87	.79	6.3	1.3	29.03	.33	51.7	2.0	4.16	.33	7.8	2.1	18.53	.39	54.7	1.8
10.7	37.23	.38	23.5	1.1	48.66	.76	7.6	1.8	29.36	.32	49.7	1.7	4.49	.31	9.9	2.0	18.92	.39	52.9	1.3
20.7	37.61	.35	22.4	0.6	49.42	.71	9.4	2.3	29.68	.30	48.0	1.5	4.80	.30	11.9	1.9	19.31	.38	51.6	0.7
30.7	37.96	.33	21.8	0.1	50.13	.64	11.7	2.8	29.98	.27	46.5	1.2	5.10	.27	13.8	1.7	19.69	.34	50.9	0.2
Feb. 9.7	38.29	.28	21.7	0.4	50.77	.56	14.5	3.0	30.25	.24	45.3	0.8	5.37	.24	15.5	1.5	20.03	.31	50.7	0.3
19.6	38.57	.24	22.1	1.0	51.33	.47	17.5	3.3	30.49	.21	44.5	0.4	5.61	.21	17.0	1.2	20.34	.27	51.0	0.9
Mar. 1.6	38.81	.19	23.1	1.3	51.80	.37	20.8	3.5	30.70	.16	44.1	0.1	5.82	.17	18.2	1.0	20.61	.22	51.9	1.4
11.6	39.00	.14	24.4	1.7	52.17	.27	24.3	3.5	30.86	.13	44.0	0.2	5.99	.13	19.2	0.8	20.83	.16	53.3	1.7
21.5	39.14	.09	26.1	2.0	52.44	.18	27.8	3.6	30.99	.09	44.2	0.5	6.12	.10	20.0	0.4	20.99	.12	55.0	2.0
31.5	39.23	.04	28.1	2.1	52.62	.07	31.4	3.5	31.08	.05	44.7	0.8	6.22	.06	20.4	0.3	21.11	.07	57.0	2.3
Apr. 10.5	39.27	.01	30.2	2.2	52.69	.02	34.9	3.4	31.13	.02	45.5	0.9	6.28	.03	20.7	0.1	21.18	.02	59.3	2.3
20.5	39.26	.04	32.4	2.2	52.67	.11	38.3	3.1	31.15	.01	46.4	1.0	6.31	.01	20.8	0.1	21.20	.02	61.6	2.4
30.4	39.22	.07	34.6	2.1	52.56	.20	41.4	2.9	31.14	.03	47.4	1.0	6.32	.02	20.7	0.3	21.18	.06	64.0	2.3
May 10.4	39.15	.11	36.7	2.0	52.36	.28	44.3	2.6	31.11	.06	48.4	1.1	6.30	.04	20.4	0.4	21.12	.09	66.3	2.1
20.4	39.04	.12	38.7	1.7	52.08	.35	46.9	2.2	31.05	.07	49.5	1.1	6.26	.06	20.0	0.5	21.03	.12	68.4	1.9
30.4	38.92	.15	40.4	1.4	51.73	.41	49.1	1.7	30.98	.09	50.6	1.0	6.20	.08	19.5	0.5	20.91	.14	70.3	1.6
June 9.3	38.77	.16	41.8	1.1	51.32	.46	50.8	1.3	30.89	.10	51.6	0.9	6.12	.09	19.0	0.6	20.77	.16	71.9	1.3
19.3	38.61	.16	42.9	0.7	50.86	.51	52.1	0.8	30.79	.10	52.5	0.8	6.03	.10	18.4	0.6	20.61	.17	73.2	0.9
29.3	38.45	.17	43.6	0.4	50.35	.54	52.9	0.3	30.69	.12	53.3	0.6	5.93	.11	17.8	0.6	20.44	.18	74.1	0.5
July 9.2	38.28	.17	44.0	0.1	49.81	.55	53.2	0.3	30.57	.12	53.9	0.5	5.82	.11	17.2	0.7	20.26	.19	74.6	0.1
19.2	38.11	.16	43.9	0.4	49.26	.54	52.9	0.8	30.45	.11	54.4	0.4	5.71	.12	16.5	0.6	20.07	.18	74.7	0.3
29.2	37.95	.16	43.5	0.7	48.72	.52	52.1	1.2	30.34	.12	54.8	0.1	5.59	.11	15.9	0.6	19.89	.18	74.4	0.6
Aug. 8.2	37.79	.14	42.8	1.2	48.20	.48	50.9	1.7	30.22	.10	54.9	0.1	5.48	.11	15.3	0.5	19.71	.16	73.8	1.1
18.1	37.65	.12	41.6	1.5	47.72	.42	49.2	2.1	30.12	.09	54.8	0.3	5.37	.10	14.8	0.4	19.55	.15	72.7	1.5
28.1	37.53	.09	40.1	1.9	47.30	.34	47.1	2.5	30.03	.07	54.5	0.5	5.27	.07	14.4	0.3	19.40	.12	71.2	1.8
Sept. 7.1	37.44	.06	38.2	2.1	46.96	.24	44.6	2.7	29.96	.04	54.0	0.7	5.20	.05	14.1	0.2	19.28	.09	69.4	2.2
17.1	37.38	.02	36.1	2.4	46.72	.13	41.9	2.8	29.92	.01	53.3	1.0	5.15	.02	13.9	0.0	19.19	.06	67.2	2.5
27.0	37.36	.03	33.7	2.7	46.59	.01	39.1	2.9	29.91	.02	52.3	1.2	5.13	.02	13.9	0.3	19.13	.01	64.7	2.7
Oct. 7.0	37.39	.07	31.0	2.9	46.58	.12	36.2	2.8	29.93	.07	51.1	1.5	5.15	.06	14.2	0.4	19.12	.04	62.0	3.0
17.0	37.46	.12	28.1	3.0	46.70	.25	33.4	2.6	30.00	.11	49.6	1.7	5.21	.11	14.6	0.8	19.16	.10	59.0	3.1
26.9	37.58	.17	25.1	3.1	46.95	.39	30.8	2.3	30.11	.15	47.9	1.9	5.32	.15	15.4	1.0	19.26	.15	55.9	3.3
Nov. 5.9	37.75	.23	22.0	3.2	47.34	.50	28.5	1.9	30.26	.20	46.0	2.1	5.47	.20	16.4	1.3	19.41	.20	52.6	3.2
15.9	37.98	.28	18.8	3.0	47.84	.61	26.6	1.5	30.46	.24	43.9	2.3	5.67	.24	17.7	1.5	19.61	.26	49.4	3.2
25.9	38.26	.32	15.8	2.9	48.45	.69	25.1	0.8	30.70	.28	41.6	2.3	5.91	.27	19.2	1.8	19.87	.31	46.2	3.1
Dec. 5.8	38.58	.35	12.9	2.7	49.14	.75	24.3	0.3	30.98	.30	39.3	2.3	6.18	.30	21.0	1.9	20.18	.34	43.1	2.8
15.8	38.93	.38	10.2	2.3	49.89	.78	24.0	0.4	31.28	.33	37.0	2.3	6.48	.32	22.9	2.0	20.52	.38	40.3	2.5
25.8	39.31	.39	7.9	1.9	50.67	.80	24.4	0.9	31.61	.33	34.7	2.2	6.80	.33	24.9	2.1	20.90	.39	37.8	2.1
35.8	39.70		6.0		51.47		25.3		31.94		32.5		7.13		27.0		21.29		35.7	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*α* Virginis. (*Spica.*)				*κ* Octantis.				*ζ* Virginis.				B. A. C. 4536.				*m* Virginis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m 13 20		° ′ −10 40		h m 13 25		° ′ −85 17		h m 13 29		° ′ − 0 6		h m 13 30		° ′ +37 39		h m 13 36		° ′ − 8 13	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.8	13.57	.33	6.0	2.0	36.09	2.89	50.6	0.5	53.21	.32	50.2	2.1	34.76	.38	43.5	2.0	39.69	.33	35.6	1.9
10.8	13.90	.32	8.0	2.0	38.98	2.85	51.1	1.1	53.53	.32	52.3	1.9	35.14	.37	41.5	1.5	40.02	.32	37.5	2.0
20.7	14.22	.31	10.0	2.0	41.83	2.74	52.2	1.7	53.85	.31	54.2	1.8	35.51	.37	40.0	1.0	40.34	.31	39.5	1.9
30.7	14.53	.28	12.0	1.8	44.57	2.55	53.9	2.2	54.16	.28	56.0	1.6	35.88	.34	39.0	0.4	40.65	.29	41.4	1.7
Feb. 9.7	14.81	.25	13.8	1.7	47.12	2.30	56.1	2.6	54.44	.26	57.6	1.3	36.22	.31	38.6	0.1	40.94	.26	43.1	1.6
19.6	15.06	.22	15.5	1.5	49.42	2.01	58.7	3.0	54.70	.23	58.9	1.0	36.53	.27	38.7	0.6	41.20	.23	44.7	1.4
Mar. 1.6	15.28	.19	17.0	1.3	51.43	1.67	61.7	3.3	54.93	.19	59.9	0.7	36.80	.23	39.3	1.1	41.43	.20	46.1	1.1
11.6	15.47	.15	18.3	1.0	53.10	1.31	65.0	3.6	55.12	.15	60.6	0.5	37.03	.18	40.4	1.5	41.63	.16	47.2	0.9
21.6	15.62	.11	19.3	0.8	54.41	0.93	68.6	3.7	55.27	.12	61.1	0.2	37.21	.13	41.9	1.9	41.79	.13	48.1	0.6
31.6	15.73	.08	20.1	0.6	55.34	0.54	72.3	3.7	55.39	.09	61.3	0.1	37.34	.09	43.8	2.1	41.92	.10	48.7	0.4
Apr. 10.5	15.81	.05	20.7	0.4	55.88	0.14	76.0	3.7	55.48	.05	61.2	0.3	37.43	.04	45.9	2.2	42.02	.06	49.1	0.3
20.5	15.86	.02	21.1	0.2	56.02	0.25	79.7	3.6	55.53	.03	60.9	0.4	37.47	.01	48.1	2.3	42.08	.04	49.4	0.0
30.5	15.88	.01	21.3	0.1	55.77	0.64	83.3	3.4	55.56	.00	60.5	0.5	37.48	.03	50.4	2.2	42.12	.01	49.4	0.1
May 10.4	15.87	.03	21.4	0.1	55.13	1.01	86.7	3.1	55.56	.02	60.0	0.7	37.45	.07	52.6	2.2	42.13	.02	49.3	0.2
20.4	15.84	.05	21.3	0.3	54.12	1.36	89.8	2.9	55.54	.05	59.3	0.7	37.38	.09	54.8	1.9	42.11	.03	49.1	0.4
30.4	15.79	.06	21.0	0.3	52.76	1.67	92.7	2.4	55.49	.06	58.6	0.7	37.29	.12	56.7	1.7	42.08	.06	48.7	0.4
June 9.3	15.73	.09	20.7	0.4	51.09	1.95	95.1	2.0	55.43	.08	57.9	0.7	37.17	.14	58.4	1.4	42.02	.08	48.3	0.5
19.3	15.64	.10	20.3	0.5	49.14	2.17	97.1	1.6	55.35	.10	57.2	0.7	37.03	.15	59.8	1.1	41.94	.09	47.8	0.5
29.3	15.54	.11	19.8	0.6	46.97	2.33	98.7	1.0	55.25	.10	56.5	0.7	36.88	.17	60.9	0.7	41.85	.10	47.3	0.6
July 9.3	15.43	.12	19.2	0.6	44.64	2.44	99.7	0.4	55.15	.12	55.8	0.6	36.71	.17	61.6	0.4	41.75	.12	46.7	0.6
19.2	15.31	.12	18.6	0.7	42.20	2.46	100.1	0.2	55.03	.12	55.2	0.5	36.54	.18	62.0	0.1	41.63	.13	46.1	0.6
29.2	15.19	.12	17.9	0.7	39.74	2.41	99.9	0.7	54.91	.12	54.7	0.5	36.36	.17	61.9	0.5	41.50	.12	45.5	0.6
Aug. 8.2	15.07	.12	17.2	0.6	37.33	2.28	99.2	1.2	54.79	.12	54.2	0.4	36.19	.17	61.4	0.8	41.38	.13	44.9	0.5
18.2	14.95	.11	16.6	0.6	35.05	2.07	98.0	1.8	54.67	.11	53.8	0.2	36.02	.15	60.6	1.2	41.25	.11	44.4	0.5
28.1	14.84	.09	16.0	0.6	32.98	1.77	96.2	2.2	54.56	.10	53.6	0.0	35.87	.13	59.4	1.6	41.14	.10	43.9	0.4
Sept. 7.1	14.75	.06	15.4	0.4	31.21	1.42	94.0	2.6	54.46	.07	53.6	0.1	35.74	.11	57.8	2.0	41.04	.08	43.5	0.3
17.1	14.69	.03	15.0	0.3	29.79	0.99	91.4	2.8	54.39	.04	53.7	0.3	35.63	.07	55.8	2.3	40.96	.05	43.2	0.2
27.0	14.66	.00	14.7	0.1	28.80	0.52	88.6	3.1	54.35	.01	54.0	0.5	35.56	.03	53.5	2.5	40.91	.01	43.0	0.1
Oct. 7.0	14.66	.05	14.6	0.1	28.28	0.01	85.5	3.1	54.34	.04	54.5	0.8	35.53	.02	51.0	2.8	40.90	.03	43.1	0.2
17.0	14.71	.09	14.7	0.4	28.27	0.50	82.4	3.0	54.38	.08	55.3	1.0	35.55	.07	48.2	3.0	40.93	.07	43.3	0.5
27.0	14.80	.14	15.1	0.7	28.77	1.01	79.4	2.9	54.46	.13	56.3	1.2	35.62	.13	45.2	3.1	41.00	.13	43.8	0.8
Nov. 5.9	14.94	.19	15.8	0.9	29.78	1.48	76.5	2.5	54.59	.17	57.5	1.5	35.75	.18	42.1	3.2	41.13	.17	44.6	1.0
15.9	15.13	.23	16.7	1.2	31.26	1.92	74.0	2.2	54.76	.21	59.0	1.8	35.93	.23	38.9	3.2	41.30	.21	45.6	1.3
25.9	15.36	.27	17.9	1.5	33.18	2.27	71.8	1.6	54.97	.26	60.8	1.9	36.16	.28	35.7	3.1	41.51	.26	46.9	1.6
Dec. 5.9	15.63	.29	19.4	1.7	35.45	2.57	70.2	1.1	55.23	.28	62.7	2.0	36.44	.32	32.6	3.0	41.77	.29	48.5	1.7
15.8	15.92	.32	21.1	1.9	38.02	2.75	69.1	0.5	55.51	.31	64.7	2.1	36.76	.35	29.6	2.6	42.06	.31	50.2	1.9
25.8	16.24	.33	23.0	1.9	40.77	2.87	68.6	0.2	55.82	.33	66.8	2.1	37.11	.38	27.0	2.3	42.37	.32	52.1	2.0
35.8	16.57		24.9		43.64		68.8		56.15		68.9		37.49		24.7		42.69		54.1	

FIXED STARS, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Ursæ Majoris.				η Bootis.				θ Apodis.				β Centauri.				π Hydræ.			
	Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *South*.	
	h m 13 43		° ′ +49 46		h m 13 50		° ′ +18 51		h m 13 56		° ′ −76 20		h m 13 57		° ′ −59 54		h m 14 0		° ′ −26 13	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.8	48.65	.43	47.2	2.0	11.36	.33	66.9	2.1	7.49	1.08	10.3	0.3	10.03	.56	47.8	0.7	59.95	.35	32.7	1.5
10.8	49.08	.44	45.2	1.4	11.69	.33	64.8	1.9	8.57	1.08	10.6	0.8	10.59	.56	48.5	1.2	60.30	.35	34.2	1.8
20.8	49.52	.43	43.8	0.8	12.02	.32	62.9	1.6	9.65	1.05	11.4	1.4	11.15	.54	49.7	1.7	60.65	.34	36.0	1.8
30.7	49.95	.40	43.0	0.2	12.34	.31	61.3	1.1	10.70	1.01	12.8	1.9	11.69	.51	51.4	2.0	60.99	.32	37.8	2.0
Feb. 9.7	50.35	.38	42.8	0.4	12.65	.28	60.2	0.7	11.71	0.93	14.7	2.3	12.20	.48	53.4	2.4	61.31	.30	39.8	1.9
19.7	50.73	.33	43.2	1.0	12.93	.25	59.5	0.2	12.64	0.84	17.0	2.8	12.68	.43	55.8	2.6	61.61	.27	41.7	1.9
Mar. 1.6	51.06	.28	44.2	1.5	13.18	.21	59.3	0.1	13.48	0.73	19.8	3.0	13.11	.37	58.4	2.8	61.88	.24	43.6	1.8
11.6	51.34	.22	45.7	1.9	13.39	.18	59.4	0.5	14.21	0.62	22.8	3.2	13.48	.32	61.2	2.9	62.12	.20	45.4	1.7
21.6	51.56	.17	47.6	2.3	13.57	.14	59.9	0.9	14.83	0.49	26.0	3.4	13.80	.26	64.1	3.0	62.32	.16	47.1	1.6
31.6	51.73	.12	49.9	2.5	13.71	.11	60.8	1.1	15.32	0.35	29.4	3.5	14.06	.20	67.1	3.0	62.48	.14	48.7	1.5
Apr. 10.5	51.85	.05	52.4	2.7	13.82	.07	61.9	1.4	15.67	0.23	32.9	3.5	14.26	.13	70.1	3.0	62.62	.09	50.2	1.2
20.5	51.90	.01	55.1	2.7	13.89	.03	63.3	1.5	15.90	0.09	36.4	3.4	14.39	.08	73.1	2.8	62.71	.07	51.4	1.1
30.5	51.91	.05	57.8	2.7	13.92	.01	64.8	1.6	15.99	0.04	39.8	3.2	14.47	.02	75.9	2.7	62.78	.04	52.5	1.0
May 10.5	51.86	.09	60.5	2.5	13.93	.01	66.4	1.5	15.95	0.18	43.0	3.1	14.49	.04	78.6	2.4	62.82	.00	53.5	0.7
20.4	51.77	.13	63.0	2.2	13.92	.05	67.9	1.5	15.77	0.30	46.1	2.8	14.45	.10	81.0	2.2	62.82	.02	54.2	0.6
30.4	51.64	.16	65.2	2.0	13.87	.06	69.4	1.4	15.47	0.41	48.9	2.5	14.35	.15	83.2	1.9	62.80	.04	54.8	0.4
June 9.4	51.48	.19	67.2	1.6	13.81	.09	70.8	1.3	15.06	0.52	51.4	2.0	14.20	.19	85.1	1.6	62.76	.08	55.2	0.2
19.3	51.29	.21	68.8	1.1	13.72	.10	72.1	1.0	14.54	0.62	53.4	1.7	14.01	.24	86.7	1.1	62.68	.09	55.4	0.1
29.3	51.08	.23	69.9	0.8	13.62	.12	73.1	0.9	13.92	0.70	55.1	1.1	13.77	.28	87.8	0.7	62.59	.12	55.5	0.2
July 9.3	50.85	.24	70.7	0.3	13.50	.13	74.0	0.6	13.22	0.75	56.2	0.7	13.49	.31	88.5	0.3	62.47	.13	55.3	0.3
19.3	50.61	.24	71.0	0.2	13.37	.14	74.6	0.4	12.47	0.79	56.9	0.1	13.18	.32	88.8	0.2	62.34	.15	55.0	0.5
29.2	50.37	.24	70.8	0.7	13.23	.14	75.0	0.1	11.68	0.80	57.0	0.5	12.86	.34	88.6	0.6	62.19	.15	54.5	0.7
Aug. 8.2	50.13	.24	70.1	1.1	13.09	.14	75.1	0.2	10.88	0.78	56.5	0.9	12.52	.33	88.0	1.0	62.04	.15	53.8	0.8
18.2	49.89	.21	69.0	1.5	12.95	.13	74.9	0.4	10.10	0.73	55.6	1.5	12.19	.31	87.0	1.4	61.89	.15	53.0	0.9
28.2	49.68	.19	67.5	1.9	12.82	.12	74.5	0.8	9.37	0.66	54.1	1.9	11.88	.28	85.6	1.8	61.74	.13	52.1	1.0
Sept. 7.1	49.49	.16	65.6	2.4	12.70	.09	73.7	1.0	8.71	0.55	52.2	2.3	11.60	.23	83.8	2.1	61.61	.11	51.1	1.0
17.1	49.33	.12	63.2	2.7	12.61	.07	72.7	1.3	8.16	0.41	49.9	2.6	11.37	.17	81.7	2.3	61.50	.08	50.1	1.0
27.1	49.21	.07	60.5	3.0	12.54	.03	71.4	1.6	7.75	0.26	47.3	2.8	11.20	.10	79.4	2.4	61.42	.04	49.1	1.0
Oct. 7.0	49.14	.02	57.5	3.2	12.51	.00	69.8	1.8	7.49	0.09	44.5	2.9	11.10	.01	77.0	2.4	61.38	.00	48.1	0.8
17.0	49.12	.05	54.3	3.4	12.51	.06	68.0	2.1	7.40	0.10	41.6	2.9	11.09	.07	74.6	2.4	61.38	.06	47.3	0.6
27.0	49.17	.11	50.9	3.6	12.57	.10	65.9	2.3	7.50	0.28	38.7	2.8	11.16	.16	72.2	2.1	61.44	.11	46.7	0.3
Nov. 6.0	49.28	.17	47.3	3.5	12.67	.15	63.6	2.5	7.78	0.46	35.9	2.5	11.32	.26	70.1	1.9	61.55	.16	46.4	0.1
15.9	49.45	.24	43.8	3.5	12.82	.20	61.1	2.6	8.24	0.63	33.4	2.2	11.58	.34	68.2	1.5	61.71	.21	46.3	0.2
25.9	49.69	.30	40.3	3.4	13.02	.24	58.5	2.7	8.87	0.78	31.2	1.7	11.92	.41	66.7	1.1	61.92	.26	46.5	0.5
Dec. 5.9	49.99	.35	36.9	3.1	13.26	.27	55.8	2.6	9.65	0.90	29.5	1.2	12.33	.48	65.6	0.6	62.18	.30	47.0	0.9
15.8	50.34	.39	33.8	2.7	13.53	.31	53.2	2.6	10.55	0.99	28.3	0.6	12.81	.52	65.0	0.1	62.48	.33	47.9	1.2
25.8	50.73	.42	31.1	2.3	13.84	.32	50.6	2.3	11.54	1.05	27.7	0.1	13.33	.54	64.9	0.4	62.81	.35	49.1	1.4
35.8	51.15		28.8		14.16		48.3		12.59		27.6		13.87		65.3		63.16		50.5	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*a* Draconis.				*d* Bootis.				*κ* Virginis.				4 Ursæ Minoris.				*a* Bootis. (*Arcturus.*)			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	14 1		+64 49		14 6		+25 31		14 7		− 9 50		14 9		+77 58		14 11		+19 39	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.8	48.24	.58	19.5	1.9	5.52	.33	70.1	2.3	51.70	.32	1.8	1.8	7.62	1.06	69.9	1.8	21.11	.32	77.5	2.3
10.8	48.82	.61	17.6	1.4	5.85	.34	67.8	1.9	52.02	.33	3.6	1.9	8.68	1.12	68.1	1.2	21.43	.33	75.2	2.0
20.8	49.43	.60	16.2	0.7	6.19	.33	65.9	1.5	52.35	.32	5.5	1.8	9.80	1.15	66.9	0.5	21.76	.32	73.2	1.6
30.7	50.03	.59	15.5	0.0	6.52	.32	64.4	1.0	52.67	.30	7.3	1.7	10.95	1.12	66.4	0.2	22.08	.31	71.6	1.3
Feb. 9.7	50.62	.55	15.5	0.6	6.84	.30	63.4	0.6	52.97	.28	9.0	1.6	12.07	1.07	66.6	0.8	22.39	.29	70.3	0.8
19.7	51.17	.50	16.1	1.3	7.14	.27	62.8	0.0	53.25	.25	10.6	1.3	13.14	0.97	67.4	1.4	22.68	.26	69.5	0.4
Mar. 1.7	51.67	.42	17.4	1.8	7.41	.23	62.8	0.4	53.50	.23	11.9	1.1	14.11	0.84	68.8	2.0	22.94	.23	69.1	0.1
11.6	52.09	.35	19.2	2.2	7.64	.20	63.2	0.8	53.73	.19	13.0	0.9	14.95	0.68	70.8	2.5	23.17	.20	69.2	0.5
21.6	52.44	.27	21.4	2.7	7.84	.16	64.0	1.2	53.92	.16	13.9	0.7	15.63	0.51	73.3	2.8	23.37	.16	69.7	0.8
31.6	52.71	17	24.1	2.9	8.00	.13	65.2	1.5	54.08	.12	14.6	0.5	16.14	0.33	76.1	3.0	23.53	.12	70.5	1.2
Apr. 10.5	52.88	.09	27.0	3.0	8.13	.08	66.7	1.7	54.20	.10	15.1	0.3	16.47	0.14	79.1	3.2	23.65	.09	71.7	1.3
20.5	52.97	.00	30.0	3.1	8.21	.05	68.4	1.8	54.30	.07	15.4	0.1	16.61	0.04	82.3	3.1	23.74	.06	73.0	1.6
30.5	52.97	.08	33.1	2.9	8.26	.02	70.2	1.9	54.37	.04	15.5	0.1	16.57	0.23	85.4	3.1	23.80	.02	74.6	1.6
May 10.5	52.89	.16	36.0	2.8	8.28	.01	72.1	1.9	54.41	.01	15.4	0.1	16.34	0.38	88.5	2.8	23.82	.00	76.2	1.6
20.4	52.73	.22	38.8	2.5	8.27	.04	74.0	1.8	54.42	.01	15.3	0.3	15.96	0.54	91.3	2.5	23.82	.03	77.8	1.6
30.4	52.51	.28	41.3	2.2	8.23	.06	75.8	1.7	54.41	.03	15.0	0.4	15.42	0.66	93.8	2.1	23.79	.05	79.4	1.4
June 9.4	52.23	.33	43.5	1.7	8.17	.09	77.5	1.5	54.38	.06	14.6	0.4	14.76	0.77	95.9	1.6	23.74	.08	80.8	1.4
19.4	51.90	.37	45.2	1.3	8.08	.11	79.0	1.2	54.32	.08	14.2	0.5	13.99	0.86	97.5	1.2	23.66	.10	82.2	1.1
29.3	51.53	.40	46.5	0.8	7.97	.13	80.2	1.0	54.24	.10	13.7	0.5	13.13	0.92	98.7	0.7	23.56	.11	83.3	0.9
July 9.3	51.13	.41	47.3	0.2	7.84	.14	81.2	0.7	54.14	.11	13.2	0.5	12.21	0.96	99.4	0.1	23.45	.14	84.2	0.7
19.3	50.72	.43	47.5	0.2	7.70	.15	81.9	0.4	54.03	.13	12.7	0.5	11.25	0.97	99.5	0.4	23.31	.14	84.9	0.4
29.2	50.29	.43	47.3	0.8	7.55	.16	82.3	0.1	53.90	.14	12.2	0.6	10.28	0.96	99.1	0.9	23.17	.15	85.3	0.2
Aug. 8.2	49.86	.41	46.5	1.3	7.39	.16	82.4	0.2	53.76	.13	11.6	0.5	9.32	0.93	98.2	1.5	23.02	.15	85.5	0.2
18.2	49.45	.38	45.2	1.8	7.23	.15	82.2	0.6	53.63	.13	11.1	0.5	8.39	0.88	96.7	2.0	22.87	.15	85.3	0.4
28.2	49.07	.36	43.4	2.2	7.08	.13	81.6	0.9	53.50	.13	10.6	0.5	7.51	0.81	94.7	2.4	22.72	.13	84.9	0.7
Sept. 7.1	48.71	.30	41.2	2.6	6.95	.12	80.7	1.3	53.37	.10	10.1	0.3	6.70	0.72	92.3	2.8	22.59	.12	84.2	1.1
17.1	48.41	.25	38.6	3.0	6.83	.09	79.4	1.6	53.27	.07	9.8	0.2	5.98	0.60	89.5	3.2	22.47	.09	83.1	1.3
27.1	48.16	.18	35.6	3.3	6.74	.06	77.8	1.8	53.20	.05	9.6	0.0	5.38	0.46	86.3	3.4	22.38	.06	81.8	1.6
Oct. 7.1	47.98	.10	32.3	3.6	6.68	.01	76.0	2.2	53.15	.00	9.6	0.1	4.92	0.31	82.9	3.7	22.32	.02	80.2	1.9
17.0	47.88	.02	28.7	3.7	6.67	.03	73.8	2.4	53.15	.05	9.7	0.4	4.61	0.14	79.2	3.8	22.30	.03	78.3	2.1
27.0	47.86	.07	25.0	3.9	6.70	.08	71.4	2.6	53.20	.09	10.1	0.6	4.47	0.03	75.4	3.9	22.33	.08	76.2	2.4
Nov. 6.0	47.93	.17	21.1	3.8	6.78	.13	68.8	2.8	53.29	.14	10.7	0.9	4.50	0.22	71.5	3.8	22.41	.12	73.8	2.6
15.9	48.10	.27	17.3	3.7	6.91	.19	66.0	2.9	53.43	.19	11.6	1.1	4.72	0.40	67.7	3.8	22.53	.17	71.2	2.7
25.9	48.37	.36	13.6	3.6	7.10	.23	63.1	2.9	53.62	.24	12.7	1.3	5.12	0.58	63.9	3.5	22.70	.22	68.5	2.7
Dec. 5.9	48.73	.44	10.0	3.2	7.33	.27	60.2	2.8	53.86	.27	14.0	1.6	5.70	0.75	60.4	3.1	22.92	.26	65.8	2.8
15.9	49.17	.50	6.8	2.8	7.60	.30	57.4	2.8	54.13	.29	15.6	1.7	6.45	0.89	57.3	2.7	23.18	.30	63.0	2.6
25.8	49.67	.56	4.0	2.4	7.90	.33	54.6	2.4	54.42	.32	17.3	1.9	7.34	1.01	54.6	2.2	23.48	.31	60.4	2.5
35.8	50.23		1.6		8.23		52.2		54.74		19.2		8.35		52.4		23.79		57.9	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Octantis.				λ Bootis.				λ Virginis.				θ Bootis.				5 Ursæ Minoris.			
	Right Ascension.		Declination South.		Right Ascension.		Declination North.		Right Ascension.		Declination South.		Right Ascension.		Declination North.		Right Ascension.		Declination North.	
	h m 14 11		° ′ −83 13		h m 14 12		° ′ +46 30		h m 14 14		° ′ −12 56		h m 14 21		° ′ +52 16		h m 14 27		° ′ +76 6	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.8	43.78	2.04	50.2	0.2	46.96	.40	64.1	2.2	0.15	.32	8.8	1.7	57.90	.43	58.6	2.4	38.52	0.90	40.2	2.0
10.8	45.82	2.09	50.0	0.5	47.36	.41	61.9	1.8	0.47	.33	10.5	1.9	58.33	.44	56.2	1.8	39.42	0.96	38.2	1.5
20.8	47.91	2.07	50.5	1.1	47.77	.40	60.1	1.2	0.80	.32	12.4	1.8	58.77	.45	54.4	1.2	40.38	1.00	36.7	0.8
30.7	49.98	2.00	51.6	1.5	48.17	.40	58.9	0.6	1.12	.31	14.2	1.7	59.22	.43	53.2	0.6	41.38	0.99	35.9	0.2
Feb. 9.7	51.98	1.89	53.1	2.1	48.57	.37	58.3	0.1	1.43	.29	15.9	1.6	59.65	.42	52.6	0.1	42.37	0.96	35.7	0.6
19.7	53.87	1.72	55.2	2.5	48.94	.34	58.4	0.6	1.72	.26	17.5	1.4	60.07	.38	52.7	0.7	43.33	0.88	36.3	1.2
Mar. 1.7	55.59	1.53	57.7	2.8	49.28	.29	59.0	1.1	1.98	.22	18.9	1.3	60.45	.33	53.4	1.2	44.21	0.78	37.5	1.7
11.6	57.12	1.30	60.5	3.2	49.57	.25	60.1	1.7	2.20	.20	20.2	1.0	60.78	.28	54.6	1.8	44.99	0.65	39.2	2.3
21.6	58.42	1.07	63.7	3.4	49.82	.20	61.8	2.1	2.40	.17	21.2	0.9	61.06	.23	56.4	2.2	45.64	0.52	41.5	2.7
31.6	59.49	0.81	67.1	3.5	50.02	.15	63.9	2.3	2.57	.14	22.1	0.6	61.29	.17	58.6	2.5	46.16	0.36	44.2	2.9
Apr. 10.5	60.30	0.54	70.6	3.5	50.17	.09	66.2	2.6	2.71	.10	22.7	0.5	61.46	.11	61.1	2.8	46.52	0.19	47.1	3.1
20.5	60.84	0.26	74.1	3.6	50.26	.05	68.8	2.7	2.81	.08	23.2	0.2	61.57	.05	63.9	2.8	46.71	0.05	50.2	3.2
30.5	61.10	0.02	77.7	3.4	50.31	.00	71.5	2.7	2.89	.04	23.4	0.2	61.62	.00	66.7	2.8	46.76	0.12	53.4	3.1
May 10.5	61.08	0.29	81.1	3.4	50.31	.05	74.2	2.6	2.93	.02	23.6	0.0	61.62	.05	69.5	2.8	46.64	0.26	56.5	2.9
20.4	60.79	0.57	84.5	3.1	50.26	.08	76.8	2.4	2.95	.00	23.6	0.1	61.57	.10	72.3	2.5	46.38	0.40	59.4	2.7
30.4	60.22	0.82	87.6	2.7	50.18	.12	79.2	2.2	2.95	.04	23.5	0.2	61.47	.14	74.8	2.3	45.98	0.52	62.1	2.3
June 9.4	59.40	1.05	90.3	2.4	50.06	.16	81.4	1.8	2.91	.05	23.3	0.3	61.33	.18	77.1	2.0	45.46	0.62	64.4	1.9
19.4	58.35	1.26	92.7	2.0	49.90	.18	83.2	1.5	2.86	.08	23.0	0.4	61.15	.21	79.1	1.5	44.84	0.70	66.3	1.5
29.3	57.09	1.43	94.7	1.5	49.72	.20	84.7	1.1	2.78	.10	22.6	0.4	60.94	.24	80.6	1.2	44.14	0.77	67.8	0.9
July 9.3	55.66	1.57	96.2	1.0	49.52	.22	85.8	0.6	2.68	.11	22.2	0.5	60.70	.26	81.8	0.6	43.37	0.82	68.7	0.4
19.3	54.09	1.65	97.2	0.5	49.30	.23	86.4	0.2	2.57	.13	21.7	0.5	60.44	.27	82.4	0.2	42.55	0.84	69.1	0.1
29.3	52.44	1.69	97.7	0.1	49.07	.23	86.6	0.3	2.44	.14	21.2	0.6	60.17	.29	82.6	0.3	41.71	0.84	69.0	0.7
Aug. 8.2	50.75	1.66	97.6	0.7	48.84	.24	86.3	0.7	2.30	.14	20.6	0.6	59.88	.27	82.3	0.7	40.87	0.84	68.3	1.1
18.2	49.09	1.58	96.9	1.2	48.60	.22	85.6	1.2	2.16	.14	20.0	0.5	59.61	.27	81.6	1.3	40.03	0.80	67.2	1.7
28.2	47.51	1.44	95.7	1.7	48.38	.21	84.4	1.6	2.02	.12	19.5	0.5	59.34	.25	80.3	1.7	39.23	0.75	65.5	2.2
Sept. 7.1	46.07	1.24	94.0	2.2	48.17	.18	82.8	2.0	1.90	.11	19.0	0.5	59.09	.23	78.6	2.1	38.48	0.67	63.3	2.5
17.1	44.83	0.98	91.8	2.6	47.99	.15	80.8	2.3	1.79	.08	18.5	0.3	58.86	.19	76.5	2.5	37.81	0.58	60.8	3.0
27.1	43.85	0.68	89.2	2.8	47.84	.11	78.5	2.8	1.71	.05	18.2	0.2	58.67	.14	74.0	2.9	37.23	0.47	57.8	3.3
Oct. 7.1	43.17	0.35	86.4	3.0	47.73	.05	75.7	3.0	1.66	.01	18.0	0.1	58.53	.08	71.1	3.2	36.76	0.34	54.5	3.6
17.0	42.82	0.00	83.4	3.0	47.68	.00	72.7	3.3	1.65	.04	17.9	0.2	58.45	.03	67.9	3.4	36.42	0.20	50.9	3.7
27.0	42.82	0.38	80.4	3.0	47.68	.06	69.4	3.4	1.69	.09	18.1	0.4	58.42	.05	64.5	3.6	36.22	0.05	47.2	3.9
Nov. 6.0	43.20	0.74	77.4	2.8	47.74	.13	66.0	3.5	1.78	.14	18.5	0.7	58.47	.11	60.9	3.7	36.17	0.12	43.3	3.9
16.0	43.94	1.08	74.6	2.5	47.87	.19	62.5	3.6	1.92	.19	19.2	0.9	58.58	.19	57.2	3.7	36.29	0.28	39.4	3.8
25.9	45.02	1.38	72.1	2.1	48.06	.25	58.9	3.4	2.11	.23	20.1	1.2	58.77	.25	53.5	3.5	36.57	0.44	35.6	3.6
Dec. 5.9	46.40	1.64	70.0	1.6	48.31	.31	55.5	3.3	2.34	.27	21.3	1.4	59.02	.31	50.0	3.4	37.01	0.60	32.0	3.3
15.9	48.04	1.84	68.4	1.1	48.62	.35	52.2	2.9	2.61	.30	22.7	1.6	59.33	.37	46.6	3.1	37.61	0.73	28.7	3.0
25.8	49.88	1.99	67.3	0.5	48.97	.38	49.3	2.6	2.91	.32	24.3	1.8	59.70	.40	43.5	2.7	38.34	0.85	25.7	2.4
35.8	51.87		66.8		49.35		46.7		3.23		26.1		60.10		40.8		39.19		23.3	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ρ Bootis.				α² Centauri.				33 Bootis.				α Apodis.				ε Bootis.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m 14 27		° ' +30 46		h m 14 33		° ' —60 26		h m 14 35		° ' +44 48		h m 14 36		° ' —78 38		h m 14 40		° ' +27 27	
	s		"		s		"		s		"		s		"		s		"	
Jan. 0.8	45.25	.33	59.0	2.4	10.97	.54	29.0	0.2	18.59	.37	30.2	2.5	6.07	1.25	21.1	0.3	51.39	.32	71.5	2.4
10.8	45.58	.35	56.6	2.0	11.51	.56	29.2	0.7	18.96	.39	27.7	2.0	7.32	1.29	20.8	0.2	51.71	.33	69.1	2.1
20.8	45.93	.35	54.6	1.6	12.07	.55	29.9	1.1	19.35	.40	25.7	1.5	8.61	1.30	21.0	0.7	52.04	.34	67.0	1.7
30.8	46.28	.33	53.0	1.0	12.62	.54	31.0	1.6	19.75	.39	24.2	0.8	9.91	1.27	21.7	1.3	52.38	.33	65.3	1.2
Feb. 9.7	46.61	.32	52.0	0.5	13.16	.51	32.6	1.9	20.14	.37	23.4	0.3	11.18	1.22	23.0	1.8	52.71	.32	64.1	0.7
19.7	46.93	.29	51.5	0.0	13.67	.47	34.5	2.2	20.51	.35	23.1	0.4	12.40	1.14	24.8	2.2	53.03	.29	63.4	0.2
Mar. 1.7	47.22	.26	51.5	0.5	14.14	.43	36.7	2.4	20.86	.30	23.5	0.9	13.54	1.03	27.0	2.6	53.32	.26	63.2	0.3
11.6	47.48	.22	52.0	0.9	14.57	.37	39.1	2.6	21.16	.27	24.4	1.5	14.57	0.91	29.6	2.8	53.58	.23	63.5	0.7
21.6	47.70	.19	52.9	1.4	14.94	.32	41.7	2.9	21.43	.22	25.9	1.9	15.48	0.77	32.4	3.1	53.81	.19	64.2	1.2
31.6	47.89	.15	54.3	1.7	15.26	.26	44.6	2.7	21.65	.17	27.8	2.2	16.25	0.63	35.5	3.3	54.00	.16	65.4	1.5
Apr. 10.6	48.04	.11	56.0	2.0	15.52	.20	47.3	2.8	21.82	.13	30.0	2.5	16.88	0.48	38.8	3.4	54.16	.12	66.9	1.8
20.5	48.15	.07	58.0	2.1	15.72	.14	50.1	2.8	21.95	.07	32.5	2.7	17.36	0.31	42.2	3.4	54.28	.09	68.7	2.0
30.5	48.22	.04	60.1	2.2	15.86	.08	52.9	2.6	22.02	.03	35.2	2.7	17.67	0.15	45.6	3.3	54.37	.05	70.7	2.1
May 10.5	48.26	.00	62.3	2.2	15.94	.02	55.5	2.6	22.05	.01	37.9	2.6	17.82	0.02	48.9	3.2	54.42	.02	72.8	2.1
20.5	48.26	.03	64.5	2.1	15.96	.05	58.1	2.3	22.04	.06	40.5	2.5	17.80	0.18	52.1	3.1	54.44	.01	74.9	2.1
30.4	48.23	.06	66.6	1.9	15.91	.10	60.4	2.1	21.98	.09	43.0	2.3	17.62	0.34	55.2	2.8	54.43	.04	77.0	1.9
June 9.4	48.17	.09	68.5	1.8	15.81	.16	62.5	1.8	21.89	.13	45.3	2.0	17.28	0.50	58.0	2.5	54.39	.07	78.9	1.7
19.4	48.08	.11	70.3	1.4	15.65	.22	64.3	1.4	21.76	.16	47.3	1.7	16.78	0.63	60.5	2.1	54.32	.10	80.6	1.5
29.3	47.97	.14	71.7	1.2	15.43	.26	65.7	1.1	21.60	.18	49.0	1.3	16.15	0.75	62.6	1.6	54.22	.12	82.1	1.3
July 9.3	47.83	.15	72.9	0.9	15.17	.30	66.8	0.7	21.42	.21	50.3	0.9	15.40	0.85	64.2	1.2	54.10	.14	83.4	0.9
19.3	47.68	.16	73.8	0.5	14.87	.33	67.5	0.2	21.21	.22	51.2	0.5	14.55	0.93	65.4	0.7	53.96	.16	84.3	0.6
29.3	47.52	.18	74.3	0.1	14.54	.36	67.7	0.2	20.99	.23	51.7	0.0	13.62	0.97	66.1	0.1	53.80	.17	84.9	0.3
Aug. 8.2	47.34	.18	74.4	0.2	14.18	.36	67.5	0.6	20.76	.24	51.7	0.5	12.65	0.98	66.2	0.4	53.63	.17	85.2	0.0
18.2	47.16	.17	74.2	0.6	13.82	.36	66.9	1.1	20.52	.23	51.2	0.9	11.67	0.96	65.8	0.9	53.46	.18	85.2	0.5
28.2	46.99	.17	73.6	1.0	13.46	.33	65.8	1.4	20.29	.22	50.3	1.4	10.71	0.89	64.9	1.5	53.28	.16	84.7	0.8
Sept. 7.2	46.82	.14	72.6	1.3	13.13	.29	64.4	1.8	20.07	.20	48.9	1.7	9.82	0.79	63.4	1.9	53.12	.15	83.9	1.1
17.1	46.68	.12	71.3	1.7	12.84	.25	62.6	2.1	19.87	.17	47.2	2.2	9.03	0.66	61.5	2.3	52.97	.13	82.8	1.5
27.1	46.56	.09	69.6	2.0	12.59	.18	60.5	2.2	19.70	.13	45.0	2.5	8.37	0.49	59.2	2.6	52.84	.10	81.3	1.8
Oct. 7.1	46.47	.05	67.6	2.4	12.41	.09	58.3	2.4	19.57	.08	42.5	2.9	7.88	0.29	56.6	2.8	52.74	.05	79.5	2.1
17.0	46.42	.00	65.2	2.6	12.32	.00	55.9	2.4	19.49	.03	39.6	3.2	7.59	0.09	53.8	3.0	52.69	.01	77.4	2.4
27.0	46.42	.06	62.6	2.8	12.32	.08	53.5	2.3	19.46	.03	36.4	3.3	7.50	0.14	50.8	2.9	52.68	.04	75.0	2.7
Nov. 6.0	46.48	.11	59.8	3.0	12.40	.18	51.2	2.1	19.49	.09	33.1	3.5	7.64	0.37	47.9	2.8	52.72	.09	72.3	2.8
16.0	46.59	.16	56.8	3.1	12.58	.27	49.1	1.8	19.58	.16	29.6	3.5	8.01	0.58	45.1	2.5	52.81	.14	69.5	3.0
25.9	46.75	.21	53.7	3.1	12.85	.36	47.3	1.4	19.74	.22	26.1	3.5	8.59	0.78	42.6	2.2	52.95	.20	66.5	3.0
Dec. 5.9	46.96	.25	50.6	3.0	13.21	.43	45.9	1.1	19.96	.27	22.5	3.4	9.37	0.95	40.4	1.7	53.15	.24	63.5	3.0
15.9	47.21	.30	47.6	2.9	13.64	.48	44.8	0.5	20.23	.32	19.2	3.1	10.32	1.10	38.7	1.2	53.39	.28	60.5	2.9
25.9	47.51	.32	44.7	2.6	14.12	.53	44.3	0.1	20.55	.36	16.1	2.8	11.42	1.20	37.5	0.7	53.67	.31	57.6	2.7
35.8	47.83		42.1		14.65		44.2		20.91		13.3		12.62		36.8		53.98		54.9	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α² Libræ.				β Ursæ Minoris.				β Bootis.				γ Scorpii.				δ Bootis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	14 45		−15 38		14 50		+74 31		14 58		+40 45		14 58		−24 54		15 11		+33 39	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.8	39.26	.32	53.7	1.5	54.19	.77	74.3	2.4	22.51	.34	36.2	2.7	32.57	.33	31.9	1.1	41.06	.31	53.1	2.7
10.8	39.58	.32	55.2	1.7	54.96	.84	71.9	1.8	22.85	.36	33.5	2.2	32.90	.34	33.0	1.4	41.37	.33	50.4	2.3
20.8	39.90	.33	56.9	1.6	55.80	.89	70.1	1.2	23.21	.37	31.3	1.7	33.24	.35	34.4	1.5	41.70	.35	48.1	1.9
30.8	40.23	.32	58.5	1.6	56.69	.90	68.9	0.5	23.58	.37	29.6	1.2	33.59	.33	35.9	1.5	42.05	.34	46.2	1.3
Feb. 9.7	40.55	.30	60.1	1.6	57.59	.88	68.4	0.2	23.95	.36	28.4	0.5	33.92	.33	37.4	1.5	42.39	.34	44.9	0.8
19.7	40.85	.28	61.7	1.4	58.47	.83	68.6	0.9	24.31	.34	27.9	0.0	34.25	.30	38.9	1.6	42.73	.32	44.1	0.2
Mar. 1.7	41.13	.25	63.1	1.2	59.30	.75	69.5	1.5	24.65	.31	27.9	0.7	34.55	.27	40.5	1.4	43.05	.29	43.9	0.3
11.7	41.38	.23	64.3	1.1	60.05	.65	71.0	2.0	24.96	.27	28.6	1.1	34.82	.25	41.9	1.4	43.34	.27	44.2	0.8
21.6	41.61	.20	65.4	0.9	60.70	.54	73.0	2.5	25.23	.24	29.7	1.7	35.07	.22	43.3	1.3	43.61	.23	45.0	1.3
31.6	41.81	.17	66.3	0.7	61.24	.41	75.5	2.8	25.47	.19	31.4	2.0	35.29	.19	44.6	1.1	43.84	.19	46.3	1.7
Apr. 10.6	41.98	.13	67.0	0.6	61.65	.26	78.3	3.0	25.66	.15	33.4	2.3	35.48	.16	45.7	1.0	44.03	.16	48.0	2.1
20.5	42.11	.11	67.6	0.4	61.91	.12	81.3	3.2	25.81	.10	35.7	2.5	35.64	.14	46.7	0.9	44.19	.12	50.1	2.2
30.5	42.22	.08	68.0	0.2	62.03	.02	84.5	3.1	25.91	.07	38.2	2.6	35.78	.10	47.6	0.8	44.31	.08	52.3	2.4
May 10.5	42.30	.05	68.2	0.1	62.01	.16	87.6	3.1	25.98	.02	40.8	2.7	35.88	.06	48.4	0.7	44.39	.05	54.7	2.4
20.5	42.35	.03	68.3	0.1	61.85	.28	90.7	2.8	26.00	.02	43.5	2.5	35.94	.04	49.1	0.5	44.44	.01	57.1	2.4
30.4	42.38	.01	68.4	0.1	61.57	.40	93.5	2.6	25.98	.06	46.0	2.4	35.98	.00	49.6	0.5	44.45	.03	59.5	2.3
June 9.4	42.37	.04	68.3	0.2	61.17	.51	96.1	2.1	25.92	.10	48.4	2.1	35.98	.02	50.1	0.3	44.42	.06	61.8	2.0
19.4	42.33	.06	68.1	0.2	60.66	.59	98.2	1.8	25.82	.12	50.5	1.9	35.96	.06	50.4	0.1	44.36	.10	63.8	1.9
29.4	42.27	.08	67.9	0.3	60.07	.66	100.0	1.3	25.70	.16	52.4	1.5	35.90	.09	50.5	0.1	44.26	.12	65.7	1.5
July 9.3	42.19	.11	67.6	0.3	59.41	.71	101.3	0.7	25.54	.18	53.9	1.1	35.81	.11	50.6	0.1	44.14	.15	67.2	1.2
19.3	42.08	.13	67.3	0.4	58.70	.76	102.0	0.3	25.36	.20	55.0	0.7	35.70	.13	50.5	0.2	43.99	.17	68.4	0.9
29.3	41.95	.14	66.9	0.5	57.94	.77	102.3	0.3	25.16	.22	55.7	0.3	35.57	.16	50.3	0.4	43.82	.19	69.3	0.5
Aug. 8.2	41.81	.15	66.4	0.5	57.17	.77	102.0	0.9	24.94	.22	56.0	0.1	35.41	.16	49.9	0.4	43.63	.20	69.8	0.0
18.2	41.66	.15	65.9	0.5	56.40	.76	101.1	1.3	24.72	.23	55.9	0.6	35.25	.17	49.5	0.6	43.43	.20	69.8	0.3
28.2	41.51	.15	65.4	0.5	55.64	.72	99.8	1.8	24.49	.22	55.3	1.1	35.08	.16	48.9	0.7	43.23	.20	69.5	0.7
Sept. 7.2	41.36	.13	64.9	0.5	54.92	.67	98.0	2.3	24.27	.20	54.2	1.4	34.92	.15	48.2	0.7	43.03	.19	68.8	1.2
17.1	41.23	.11	64.4	0.4	54.25	.59	95.7	2.7	24.07	.18	52.8	1.9	34.77	.13	47.5	0.8	42.84	.17	67.6	1.5
27.1	41.12	.07	64.0	0.3	53.66	.50	93.0	3.1	23.89	.15	50.9	2.2	34.64	.09	46.7	0.7	42.67	.14	66.1	1.9
Oct. 7.1	41.05	.04	63.7	0.2	53.16	.39	89.9	3.4	23.74	.10	48.7	2.6	34.55	.05	46.0	0.7	42.53	.10	64.2	2.2
17.1	41.01	.01	63.5	0.0	52.77	.27	86.5	3.7	23.64	.05	46.1	2.9	34.50	.01	45.3	0.5	42.43	.05	62.0	2.6
27.0	41.02	.06	63.5	0.2	52.50	.12	82.8	3.8	23.59	.01	43.2	3.2	34.49	.05	44.8	0.4	42.38	.01	59.4	2.8
Nov. 6.0	41.08	.11	63.7	0.4	52.38	.02	79.0	3.8	23.60	.06	40.0	3.3	34.54	.10	44.4	0.2	42.37	.06	56.6	3.1
16.0	41.19	.16	64.1	0.7	52.40	.17	75.1	3.8	23.66	.12	36.7	3.4	34.64	.16	44.2	0.1	42.43	.10	53.5	3.2
25.9	41.35	.20	64.8	0.9	52.57	.32	71.3	3.7	23.78	.18	33.3	3.5	34.80	.21	44.3	0.3	42.53	.17	50.3	3.3
Dec. 5.9	41.55	.25	65.7	1.1	52.89	.47	67.6	3.5	23.96	.24	29.8	3.4	35.01	.25	44.6	0.6	42.70	.21	47.0	3.2
15.9	41.80	.28	66.8	1.4	53.36	.60	64.1	3.2	24.20	.29	26.4	3.2	35.26	.29	45.2	0.8	42.91	.26	43.8	3.1
25.9	42.08	.31	68.2	1.5	53.96	.72	60.9	2.7	24.49	.32	23.2	2.9	35.55	.32	46.0	1.1	43.17	.30	40.7	2.9
35.8	42.39		69.7		54.68		58.2		24.81		20.3		35.87		47.1		43.47		37.8	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Libræ.				γ² Ursæ Minoris.				μ¹ Bootis.				ρ Octantis.				β Coronæ Borealis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m 15 11		° ′ − 9 2		h m 15 20		° ′ +72 9		h m 15 20		° ′ +37 42		h m 15 21		° ′ −84 8		h m 15 23		° ′ +29 25	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.9	55.37	.30	1.4	1.7	48.43	.62	60.0	2.8	54.52	.32	21.6	2.8	22.37	2.19	47.7	1.2	55.49	.30	45.8	2.7
10.8	55.67	.31	3.1	1.7	49.05	.71	57.2	2.2	54.84	.34	18.8	2.4	24.56	2.36	46.5	0.6	55.79	.32	43.1	2.3
20.8	55.98	.32	4.8	1.6	49.76	.75	55.0	1.6	55.18	.35	16.4	1.9	26.92	2.45	45.9	0.1	56.11	.33	40.8	2.0
30.8	56.30	.31	6.4	1.5	50.51	.79	53.4	0.9	55.53	.36	14.5	1.4	29.37	2.49	45.8	0.5	56.44	.33	38.8	1.4
Feb. 9.8	56.61	.30	7.9	1.4	51.30	.78	52.5	0.2	55.89	.35	13.1	0.8	31.86	2.46	46.3	1.0	56.77	.32	37.4	1.0
19.7	56.91	.29	9.3	1.1	52.08	.75	52.3	0.4	56.24	.33	12.3	0.2	34.32	2.37	47.3	1.5	57.09	.31	36.4	0.4
Mar. 1.7	57.20	.26	10.4	1.0	52.83	.71	52.7	1.1	56.57	.31	12.1	0.4	36.69	2.24	48.8	2.0	57.40	.29	36.0	0.2
11.7	57.46	.24	11.4	0.7	53.54	.63	53.8	1.6	56.88	.28	12.5	0.9	38.93	2.05	50.8	2.3	57.69	.27	36.2	0.6
21.6	57.70	.22	12.1	0.5	54.17	.54	55.4	2.2	57.16	.25	13.4	1.4	40.98	1.84	53.1	2.7	57.96	.23	36.8	1.1
31.6	57.92	.18	12.6	0.3	54.71	.44	57.6	2.6	57.41	.21	14.8	1.8	42.82	1.59	55.8	3.0	58.19	.20	37.9	1.5
Apr. 10.6	58.10	.16	12.9	0.1	55.15	.32	60.2	3.0	57.62	.17	16.6	2.2	44.41	1.30	58.8	3.1	58.39	.17	39.4	1.9
20.6	58.26	.13	13.0	0.1	55.47	.20	63.2	3.0	57.79	.13	18.8	2.4	45.71	1.01	61.9	3.3	58.56	.13	41.3	2.0
30.5	58.39	.11	12.9	0.2	55.67	.08	66.2	3.2	57.92	.09	21.2	2.6	46.72	0.68	65.2	3.4	58.69	.10	43.3	2.2
May 10.5	58.50	.07	12.7	0.3	55.75	.04	69.4	3.2	58.01	.05	23.8	2.6	47.40	0.35	68.6	3.4	58.79	.06	45.5	2.3
20.5	58.57	.04	12.4	0.4	55.71	.16	72.6	3.0	58.06	.01	26.4	2.5	47.75	0.02	72.0	3.3	58.85	.02	47.8	2.3
30.5	58.61	.02	12.0	0.4	55.55	.26	75.6	2.8	58.07	.03	28.9	2.4	47.77	0.33	75.3	3.1	58.87	.01	50.1	2.2
June 9.4	58.63	.02	11.6	0.4	55.29	.37	78.4	2.5	58.04	.06	31.3	2.3	47.44	0.66	78.4	2.9	58.86	.04	52.3	2.1
19.4	58.61	.04	11.2	0.5	54.92	.45	80.9	2.1	57.98	.10	33.6	2.0	46.78	0.98	81.3	2.6	58.82	.08	54.4	1.8
29.4	58.57	.07	10.7	0.5	54.47	.53	83.0	1.7	57.88	.14	35.6	1.7	45.80	1.26	83.9	2.3	58.74	.10	56.2	1.6
July 9.3	58.50	.09	10.2	0.5	53.94	.59	84.7	1.2	57.74	.16	37.3	1.3	44.54	1.51	86.2	1.8	58.64	.14	57.8	1.3
19.3	58.41	.12	9.7	0.5	53.35	.64	85.9	0.7	57.58	.18	38.6	0.9	43.03	1.71	88.0	1.4	58.50	.15	59.1	1.0
29.3	58.29	.14	9.2	0.4	52.71	.67	86.6	0.2	57.40	.20	39.5	0.6	41.32	1.87	89.4	0.8	58.35	.18	60.1	0.6
Aug. 8.3	58.15	.15	8.8	0.4	52.04	.68	86.8	0.4	57.20	.22	40.1	0.1	39.45	1.95	90.2	0.3	58.17	.19	60.7	0.2
18.2	58.00	.15	8.4	0.4	51.36	.69	86.4	0.9	56.98	.23	40.2	0.3	37.50	1.98	90.5	0.3	57.98	.19	60.9	0.2
28.2	57.85	.15	8.0	0.3	50.67	.68	85.5	1.4	56.75	.22	39.9	0.8	35.52	1.92	90.2	0.9	57.79	.20	60.7	0.5
Sept. 7.2	57.70	.15	7.7	0.2	49.99	.63	84.1	1.9	56.53	.21	39.1	1.1	33.60	1.79	89.3	1.4	57.59	.18	60.2	0.9
17.2	57.55	.12	7.5	0.1	49.36	.58	82.2	2.3	56.32	.18	38.0	1.6	31.81	1.59	87.9	1.9	57.41	.17	59.3	1.3
27.1	57.43	.10	7.4	0.0	48.78	.52	79.9	2.7	56.14	.16	36.4	2.0	30.22	1.32	86.0	2.3	57.24	.14	58.0	1.7
Oct. 7.1	57.33	.06	7.4	0.2	48.26	.42	77.2	3.2	55.98	.12	34.4	2.4	28.90	0.99	83.7	2.7	57.10	.11	56.3	2.0
17.1	57.27	.02	7.6	0.4	47.84	.32	74.0	3.4	55.86	.08	32.0	2.6	27.91	0.61	81.0	2.9	56.99	.06	54.3	2.3
27.0	57.25	.03	8.0	0.6	47.52	.20	70.6	3.7	55.78	.02	29.4	3.0	27.30	0.19	78.1	3.0	56.93	.01	52.0	2.6
Nov. 6.0	57.28	.08	8.6	0.8	47.32	.08	66.9	3.8	55.76	.04	26.4	3.1	27.11	0.23	75.1	3.0	56.92	.04	49.4	2.9
16.0	57.36	.13	9.4	1.0	47.24	.06	63.1	3.9	55.80	.09	23.3	3.4	27.34	0.66	72.1	2.9	56.96	.10	46.5	3.0
26.0	57.49	.18	10.4	1.2	47.30	.20	59.2	3.8	55.89	.15	19.9	3.4	28.00	1.08	69.2	2.7	57.06	.15	43.5	3.1
Dec. 5.9	57.67	.22	11.6	1.4	47.50	.33	55.4	3.7	56.04	.21	16.5	3.3	29.08	1.45	66.5	2.4	57.21	.20	40.4	3.1
15.9	57.89	.26	13.0	1.5	47.83	.45	51.7	3.4	56.25	.26	13.2	3.2	30.53	1.78	64.1	2.0	57.41	.24	37.3	3.0
25.9	58.15	.29	14.5	1.7	48.28	.57	48.3	3.0	56.51	.29	10.0	3.0	32.31	2.06	62.1	1.4	57.65	.28	34.3	2.9
35.9	58.44		16.2		48.85		45.3		56.80		7.0		34.37		60.7		57.93		31.4	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Coronæ Borealis.				α Serpentis.				ε Serpentis.				ζ Ursæ Minoris.				ε Coronæ Borealis.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.	
	h m 15 30		° ′ +27 1		h m 15 39		° ′ + 6 43		h m 15 46		° ′ + 4 45		h m 15 47		° ′ +78 4		h m 15 53		° ′ +27 8	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.9	40.74	.29	51.1	2.6	36.62	.28	21.3	2.2	6.14	.27	43.7	2.1	18.22	0.79	57.2	2.9	39.91	.27	60.3	2.7
10.9	41.03	.31	48.5	2.4	36.90	.29	19.1	2.0	6.41	.29	41.6	1.9	19.01	0.92	54.3	2.4	40.18	.30	57.6	2.4
20.8	41.34	.33	46.1	2.0	37.19	.30	17.1	1.8	6.70	.30	39.7	1.8	19.93	1.03	51.9	1.8	40.48	.31	55.2	2.1
30.8	41.67	.32	44.1	1.5	37.49	.31	15.3	1.5	7.00	.30	37.9	1.5	20.96	1.09	50.1	1.2	40.79	.33	53.1	1.7
Feb. 9.8	41.99	.32	42.6	1.0	37.80	.30	13.8	1.2	7.30	.30	36.4	1.2	22.05	1.12	48.9	0.6	41.12	.32	51.4	1.1
19.7	42.31	.31	41.6	0.5	38.10	.29	12.6	0.9	7.60	.29	35.2	0.9	23.17	1.11	48.3	0.2	41.44	.31	50.3	0.6
Mar. 1.7	42.62	.29	41.1	0.0	38.39	.27	11.7	0.5	7.89	.28	34.3	0.6	24.28	1.06	48.5	0.8	41.75	.30	49.7	0.1
11.7	42.91	.26	41.1	0.5	38.66	.25	11.2	0.1	8.17	.25	33.7	0.2	25.34	0.97	49.3	1.4	42.05	.27	49.6	0.4
21.7	43.17	.24	41.6	1.0	38.91	.23	11.1	0.2	8.42	.23	33.5	0.2	26.31	0.86	50.7	2.0	42.32	.25	50.0	0.9
31.6	43.41	.21	42.6	1.4	39.14	.20	11.3	0.5	8.65	.21	33.7	0.4	27.17	0.71	52.7	2.4	42.57	.23	50.9	1.3
Apr. 10.6	43.62	.17	44.0	1.7	39.34	.18	11.8	0.8	8.86	.18	34.1	0.7	27.88	0.55	55.1	2.8	42.80	.19	52.2	1.7
20.6	43.79	.14	45.7	2.0	39.52	.15	12.6	1.0	9.04	.16	34.8	0.9	28.43	0.37	57.9	3.0	42.99	.16	53.9	1.9
30.6	43.93	.10	47.7	2.1	39.67	.12	13.6	1.1	9.20	.13	35.7	1.0	28.80	0.19	60.9	3.2	43.15	.13	55.8	2.2
May 10.5	44.03	.07	49.8	2.2	39.79	.09	14.7	1.3	9.33	.09	36.7	1.2	28.99	0.01	64.1	3.2	43.28	.09	58.0	2.2
20.5	44.10	.04	52.0	2.2	39.88	.06	16.0	1.3	9.42	.07	37.9	1.2	29.00	0.17	67.3	3.1	43.37	.06	60.2	2.3
30.5	44.14	.00	54.2	2.2	39.94	.03	17.3	1.3	9.49	.04	39.1	1.3	28.83	0.35	70.4	2.9	43.43	.02	62.5	2.3
June 9.4	44.14	.03	56.4	2.0	39.97	.00	18.6	1.3	9.53	.01	40.4	1.2	28.48	0.50	73.3	2.7	43.45	.01	64.8	2.1
19.4	44.11	.07	58.4	1.8	39.97	.03	19.9	1.1	9.54	.03	41.6	1.1	27.98	0.65	76.0	2.3	43.44	.05	66.9	2.0
29.4	44.04	.10	60.2	1.6	39.94	.06	21.0	1.1	9.51	.05	42.7	1.0	27.33	0.78	78.3	1.9	43.39	.08	68.9	1.7
July 9.4	43.94	.12	61.8	1.3	39.88	.09	22.1	0.9	9.46	.09	43.7	0.9	26.55	0.89	80.2	1.4	43.31	.12	70.6	1.5
19.3	43.82	.15	63.1	1.0	39.79	.11	23.0	0.8	9.37	.11	44.6	0.7	25.66	0.97	81.6	1.0	43.19	.14	72.1	1.1
29.3	43.67	.17	64.1	0.6	39.68	.14	23.8	0.6	9.26	.13	45.3	0.6	24.69	1.03	82.6	0.5	43.05	.16	73.2	0.8
Aug. 8.3	43.50	.18	64.7	0.3	39.54	.15	24.4	0.4	9.13	.15	45.9	0.5	23.66	1.07	83.1	0.0	42.89	.19	74.0	0.5
18.3	43.32	.19	65.0	0.1	39.39	.16	24.8	0.2	8.98	.16	46.4	0.2	22.59	1.09	83.1	0.6	42.70	.19	74.5	0.1
28.2	43.13	.19	64.9	0.4	39.23	.17	25.0	0.0	8.82	.16	46.6	0.1	21.50	1.08	82.5	1.1	42.51	.20	74.6	0.3
Sept. 7.2	42.94	.18	64.5	0.8	39.06	.16	25.0	0.2	8.66	.16	46.7	0.2	20.42	1.04	81.4	1.6	42.31	.20	74.3	0.6
17.2	42.76	.17	63.7	1.2	38.90	.14	24.8	0.5	8.50	.15	46.5	0.4	19.38	0.97	79.8	2.0	42.11	.18	73.7	1.0
27.1	42.59	.14	62.5	1.5	38.76	.12	24.3	0.7	8.35	.12	46.1	0.6	18.41	0.89	77.8	2.5	41.93	.16	72.7	1.4
Oct. 7.1	42.45	.10	61.0	1.9	38.64	.09	23.6	0.9	8.23	.10	45.5	0.8	17.52	0.77	75.3	2.9	41.77	.13	71.3	1.8
17.1	42.35	.07	59.1	2.2	38.55	.05	22.7	1.2	8.13	.05	44.7	1.1	16.75	0.63	72.4	3.2	41.64	.08	69.5	2.1
27.1	42.28	.01	56.9	2.5	38.50	.00	21.5	1.4	8.08	.01	43.6	1.3	16.12	0.46	69.2	3.5	41.56	.05	67.4	2.4
Nov. 6.0	42.27	.03	54.4	2.7	38.50	.04	20.1	1.7	8.07	.04	42.3	1.5	15.66	0.29	65.7	3.7	41.51	.01	65.0	2.6
16.0	42.30	.09	51.7	2.9	38.54	.09	18.4	1.8	8.11	.08	40.8	1.8	15.37	0.10	62.0	3.8	41.52	.06	62.4	2.9
26.0	42.39	.15	48.8	3.0	38.63	.15	16.6	2.1	8.19	.14	39.0	1.9	15.27	0.11	58.2	3.8	41.58	.12	59.5	3.0
Dec. 6.0	42.54	.19	45.8	3.1	38.78	.18	14.5	2.1	8.33	.18	37.1	2.0	15.38	0.31	54.4	3.7	41.70	.17	56.5	3.0
15.9	42.73	.23	42.7	3.0	38.96	.23	12.4	2.2	8.51	.23	35.1	2.1	15.69	0.50	50.7	3.5	41.87	.21	53.5	3.0
25.9	42.96	.28	39.7	2.8	39.19	.26	10.2	2.2	8.74	.25	33.0	2.1	16.19	0.68	47.2	3.2	42.08	.26	50.5	2.9
35.9	43.24		36.9		39.45		8.0		8.99		30.9		16.87		44.0		42.34		47.6	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Scorpii.				β¹ Scorpii.				φ Herculis.				Groombridge 2320.				δ¹ Apodis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	15 54		−22 21		15 59		−19 32		16 5		+45 10		16 5		+68 3		16 6		−78 27	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.9	44.66	.30	3.9	0.9	56.41	.29	42.9	1.0	46.33	.29	50.9	3.1	60.28	.44	24.3	3.2	10.57	1.05	14.6	1.5
10.9	44.96	.31	4.8	1.1	56.70	.30	43.9	1.1	46.62	.33	47.8	2.7	60.72	.52	21.1	2.7	11.62	1.18	13.1	1.2
20.8	45.27	.33	5.9	1.1	57.00	.32	45.0	1.1	46.95	.36	45.1	2.3	61.24	.58	18.4	2.2	12.80	1.25	11.9	0.6
30.8	45.60	.33	7.0	1.1	57.32	.33	46.1	1.2	47.31	.37	42.8	1.7	61.82	.63	16.2	1.5	14.05	1.31	11.3	0.1
Feb. 9.8	45.93	.32	8.1	1.2	57.65	.32	47.3	1.1	47.68	.38	41.1	1.1	62.45	.64	14.7	0.9	15.36	1.32	11.2	0.4
19.8	46.25	.32	9.3	1.1	57.97	.31	48.4	1.1	48.06	.37	40.0	0.5	63.09	.65	13.8	0.2	16.68	1.30	11.6	0.8
Mar. 1.7	46.57	.30	10.4	1.1	58.28	.30	49.5	1.0	48.43	.36	39.5	0.1	63.74	.62	13.6	0.4	17.98	1.27	12.4	1.3
11.7	46.87	.29	11.5	0.9	58.58	.28	50.5	0.8	48.79	.34	39.6	0.8	64.36	.58	14.0	1.1	19.25	1.20	13.7	1.7
21.7	47.16	.26	12.4	0.9	58.86	.26	51.3	0.8	49.13	.31	40.4	1.3	64.94	.53	15.1	1.7	20.45	1.12	15.4	2.1
31.6	47.42	.24	13.3	0.7	59.12	.23	52.1	0.6	49.44	.27	41.7	1.8	65.47	.45	16.8	2.2	21.57	1.01	17.5	2.4
Apr. 10.6	47.66	.21	14.0	0.7	59.35	.22	52.7	0.5	49.71	.23	43.5	2.2	65.92	.37	19.0	2.6	22.58	0.88	19.9	2.6
20.6	47.87	.18	14.7	0.5	59.57	.18	53.2	0.3	49.94	.19	45.7	2.5	66.29	.28	21.6	2.9	23.46	0.75	22.5	2.8
30.6	48.05	.16	15.2	0.5	59.75	.16	53.5	0.3	50.13	.15	48.2	2.8	66.57	.19	24.5	3.2	24.21	0.60	25.3	3.0
May 10.5	48.21	.12	15.7	0.4	59.91	.13	53.8	0.2	50.28	.09	51.0	2.9	66.76	.09	27.7	3.2	24.81	0.44	28.3	3.1
20.5	48.33	.10	16.1	0.3	60.04	.10	54.0	0.2	50.37	.05	53.9	2.9	66.85	.01	30.9	3.2	25.25	0.27	31.4	3.1
30.5	48.43	.06	16.4	0.3	60.14	.06	54.2	0.1	50.42	.01	56.8	2.8	66.84	.10	34.1	3.1	25.52	0.09	34.5	3.0
June 9.5	48.49	.02	16.7	0.2	60.20	.03	54.3	0.0	50.43	.04	59.6	2.7	66.74	.19	37.2	2.8	25.61	0.08	37.5	2.9
19.4	48.51	.01	16.9	0.1	60.23	.01	54.3	0.0	50.39	.09	62.3	2.5	66.55	.28	40.0	2.6	25.53	0.26	40.4	2.8
29.4	48.50	.05	17.0	0.1	60.22	.04	54.3	0.0	50.30	.13	64.8	2.1	66.27	.36	42.6	2.3	25.27	0.43	43.2	2.4
July 9.4	48.45	.08	17.1	0.0	60.18	.07	54.3	0.1	50.17	.17	66.9	1.8	65.91	.42	44.9	1.8	24.84	0.59	45.6	2.1
19.3	48.37	.11	17.1	0.0	60.11	.11	54.2	0.1	50.00	.21	68.7	1.4	65.49	.48	46.7	1.3	24.25	0.72	47.7	1.8
29.3	48.26	.13	17.1	0.2	60.00	.13	54.1	0.2	49.79	.23	70.1	1.0	65.01	.52	48.0	0.9	23.53	0.83	49.5	1.2
Aug. 8.3	48.13	.16	16.9	0.2	59.87	.15	53.9	0.3	49.56	.26	71.1	0.5	64.49	.56	48.9	0.4	22.70	0.92	50.7	0.8
18.3	47.97	.17	16.7	0.3	59.72	.17	53.6	0.2	49.30	.27	71.6	0.1	63.93	.58	49.3	0.2	21.78	0.97	51.5	0.2
28.2	47.80	.18	16.4	0.4	59.55	.18	53.4	0.4	49.03	.28	71.7	0.4	63.35	.58	49.1	0.7	20.81	0.99	51.7	0.3
Sept. 7.2	47.62	.17	16.0	0.4	59.37	.17	53.0	0.3	48.75	.27	71.3	0.9	62.77	.57	48.4	1.2	19.82	0.95	51.4	0.8
17.2	47.45	.16	15.6	0.4	59.20	.15	52.7	0.4	48.48	.26	70.4	1.3	62.20	.55	47.2	1.7	18.87	0.90	50.6	1.4
27.2	47.29	.13	15.2	0.5	59.05	.14	52.3	0.3	48.22	.23	69.1	1.8	61.65	.49	45.5	2.2	17.97	0.78	49.2	1.8
Oct. 7.1	47.16	.10	14.7	0.4	58.91	.10	52.0	0.3	47.99	.20	67.3	2.3	61.16	.44	43.3	2.6	17.19	0.65	47.4	2.2
17.1	47.06	.06	14.3	0.4	58.81	.06	51.7	0.2	47.79	.15	65.0	2.6	60.72	.36	40.7	3.0	16.54	0.47	45.2	2.5
27.1	47.00	.01	13.9	0.2	58.75	.02	51.5	0.1	47.64	.10	62.4	2.9	60.36	.27	37.7	3.3	16.07	0.26	42.7	2.8
Nov. 6.0	46.99	.04	13.7	0.1	58.73	.04	51.4	0.1	47.54	.04	59.5	3.3	60.09	.17	34.4	3.6	15.81	0.05	39.9	2.8
16.0	47.03	.10	13.6	0.0	58.77	.09	51.5	0.2	47.50	.03	56.2	3.4	59.92	.06	30.8	3.8	15.76	0.17	37.1	2.9
26.0	47.13	.15	13.6	0.3	58.86	.14	51.7	0.4	47.53	.09	52.8	3.5	59.86	.06	27.0	3.9	15.93	0.40	34.2	2.8
Dec. 6.0	47.28	.20	13.9	0.5	59.00	.19	52.1	0.6	47.62	.15	49.3	3.6	59.92	.17	23.1	3.8	16.33	0.61	31.4	2.5
15.9	47.48	.24	14.4	0.6	59.19	.23	52.7	0.8	47.77	.21	45.7	3.5	60.09	.28	19.3	3.6	16.94	0.80	28.9	2.2
25.9	47.72	.28	15.0	0.8	59.42	.27	53.5	1.0	47.98	.26	42.2	3.3	60.37	.38	15.7	3.4	17.74	0.97	26.7	1.8
35.9	48.00		15.8		59.69		54.5		48.24		38.9		60.75		12.3		18.71		24.9	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Ophiuchi.				σ Coronæ Borealis.				τ Herculis.				γ Apodis.				η Ursæ Minoris.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m 16 9		° ' − 3 27		h m 16 11		° ' +34 5		h m 16 16		° ' +46 32		h m 16 18		° ' −78 40		h m 16 20		° ' +75 58	
	s		"		s		"		s		"		s		"		s		"	
Jan. 0.9	23.40	.26	1.4	1.7	7.55	.26	48.7	3.0	52.70	.29	12.2	3.2	54.23	1.04	53.2	1.7	9.31	.57	17.2	3.1
10.9	23.66	.28	3.1	1.6	7.81	.30	45.7	2.6	52.99	.32	9.0	2.8	55.27	1.16	51.5	1.3	9.88	.71	14.1	2.8
20.9	23.94	.30	4.7	1.6	8.11	.32	43.1	2.2	53.31	.36	6.2	2.4	56.43	1.26	50.2	0.8	10.59	.81	11.3	2.2
30.8	24.24	.30	6.3	1.4	8.43	.33	40.9	1.8	53.67	.37	3.8	1.8	57.69	1.32	49.4	0.4	11.40	.90	9.1	1.7
Feb. 9.8	24.54	.30	7.7	1.2	8.76	.33	39.1	1.2	54.04	.39	2.0	1.2	59.01	1.35	49.0	0.2	12.30	.94	7.4	1.0
19.8	24.84	.30	8.9	1.0	9.09	.33	37.9	0.7	54.43	.38	0.8	0.6	60.36	1.34	49.2	0.6	13.24	.95	6.4	0.3
Mar. 1.7	25.14	.28	9.9	0.7	9.42	.32	37.2	0.1	54.81	.37	0.2	0.1	61.70	1.31	49.8	1.1	14.19	.94	6.1	0.4
11.7	25.42	.27	10.6	0.4	9.74	.30	37.1	0.5	55.18	.35	0.3	0.7	63.01	1.25	50.9	1.5	15.13	.89	6.5	1.0
21.7	25.69	.25	11.0	0.1	10.04	.28	37.6	1.0	55.53	.32	1.0	1.2	64.26	1.18	52.4	1.9	16.02	.81	7.5	1.6
31.7	25.94	.22	11.1	0.1	10.32	.25	38.6	1.5	55.85	.29	2.2	1.8	65.44	1.07	54.3	2.2	16.83	.70	9.1	2.1
Apr. 10.6	26.16	.21	11.0	0.3	10.57	.21	40.1	1.8	56.14	.25	4.0	2.2	66.51	0.95	56.5	2.5	17.53	.58	11.2	2.6
20.6	26.37	.18	10.7	0.5	10.78	.18	41.9	2.2	56.39	.20	6.2	2.5	67.46	0.82	59.0	2.8	18.11	.44	13.8	2.8
30.6	26.55	.15	10.2	0.7	10.96	.15	44.1	2.4	56.59	.16	8.7	2.8	68.28	0.67	61.8	2.9	18.55	.29	16.6	3.1
May 10.5	26.70	.12	9.5	0.7	11.11	.11	46.5	2.6	56.75	.12	11.5	2.9	68.95	0.51	64.7	3.0	18.84	.14	19.7	3.2
20.5	26.82	.10	8.8	0.8	11.22	.06	49.1	2.6	56.87	.06	14.4	3.0	69.46	0.34	67.7	3.1	18.98	.02	22.9	3.2
30.5	26.92	.06	8.0	0.9	11.28	.03	51.7	2.5	56.93	.01	17.4	2.9	69.80	0.15	70.8	3.0	18.96	.17	26.1	3.2
June 9.5	26.98	.04	7.1	0.8	11.31	.01	54.2	2.5	56.94	.03	20.3	2.8	69.95	0.03	73.8	3.0	18.79	.31	29.3	2.9
19.4	27.02	.01	6.3	0.8	11.30	.05	56.7	2.2	56.91	.09	23.1	2.5	69.92	0.21	76.8	2.8	18.48	.45	32.2	2.6
29.4	27.01	.03	5.5	0.8	11.25	.09	58.9	2.0	56.82	.12	25.6	2.3	69.71	0.39	79.6	2.5	18.03	.57	34.8	2.4
July 9.4	26.98	.07	4.7	0.6	11.16	.12	60.9	1.7	56.70	.17	27.9	1.9	69.32	0.55	82.1	2.2	17.46	.68	37.2	1.9
19.4	26.91	.10	4.1	0.6	11.04	.15	62.6	1.4	56.53	.21	29.8	1.5	68.77	0.70	84.3	1.9	16.78	.78	39.1	1.4
29.3	26.81	.12	3.5	0.5	10.89	.18	64.0	1.0	56.32	.24	31.3	1.1	68.07	0.82	86.2	1.4	16.00	.85	40.5	1.0
Aug. 8.3	26.69	.15	3.0	0.4	10.71	.21	65.0	0.6	56.08	.27	32.4	0.7	67.25	0.92	87.6	0.9	15.15	.90	41.5	0.5
18.3	26.54	.16	2.6	0.3	10.50	.22	65.6	0.2	55.81	.28	33.1	0.2	66.33	0.98	88.5	0.4	14.25	.93	42.0	0.0
28.3	26.38	.16	2.3	0.2	10.28	.23	65.8	0.2	55.53	.29	33.3	0.3	65.35	1.01	88.9	0.1	13.32	.95	42.0	0.6
Sept. 7.2	26.22	.17	2.1	0.0	10.05	.22	65.6	0.6	55.24	.28	33.0	0.8	64.34	1.00	88.8	0.7	12.37	.93	41.4	1.1
17.2	26.05	.15	2.1	0.1	9.83	.21	65.0	1.1	54.96	.28	32.2	1.2	63.34	0.94	88.1	1.2	11.44	.90	40.3	1.5
27.2	25.90	.14	2.2	0.2	9.62	.19	63.9	1.5	54.68	.25	31.0	1.7	62.40	0.84	86.9	1.7	10.54	.84	38.8	2.1
Oct. 7.1	25.76	.10	2.4	0.5	9.43	.16	62.4	1.9	54.43	.21	29.3	2.2	61.56	0.70	85.2	2.1	9.70	.75	36.7	2.4
17.1	25.66	.07	2.9	0.6	9.27	.12	60.5	2.2	54.22	.17	27.1	2.6	60.86	0.53	83.1	2.4	8.95	.64	34.3	2.9
27.1	25.59	.03	3.5	0.8	9.15	.08	58.3	2.6	54.05	.12	24.5	2.9	60.33	0.33	80.7	2.7	8.31	.52	31.4	3.3
Nov. 6.1	25.56	.02	4.3	1.0	9.07	.02	55.7	2.8	53.93	.06	21.6	3.2	60.00	0.11	78.0	2.8	7.79	.37	28.1	3.5
16.0	25.58	.07	5.3	1.2	9.05	.03	52.9	3.1	53.87	.01	18.4	3.4	59.89	0.12	75.2	2.9	7.42	.20	24.6	3.6
26.0	25.65	.12	6.5	1.4	9.08	.09	49.8	3.2	53.88	.07	15.0	3.6	60.01	0.34	72.3	2.8	7.22	.04	21.0	3.8
Dec. 6.0	25.77	.16	7.9	1.5	9.17	.15	46.6	3.3	53.95	.13	11.4	3.6	60.35	0.57	69.5	2.6	7.18	.14	17.2	3.8
15.9	25.93	.21	9.4	1.7	9.32	.20	43.3	3.2	54.08	.20	7.8	3.6	60.92	0.77	66.9	2.3	7.32	.31	13.4	3.6
25.9	26.14	.24	11.1	1.7	9.52	.24	40.1	3.1	54.28	.26	4.2	3.3	61.69	0.94	64.6	2.0	7.63	.48	9.8	3.4
35.9	26.38		12.8		9.76		37.0		54.54		0.9		62.63		62.6		8.11		6.4	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT·PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Draconis.				α Scorpii. (*Antares.*)				β Herculis.				A Draconis.				ζ Ophiuchi.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	16 22		+61 43		16 23		−26 13		16 26		+21 41		16 28		+68 58		16 31		−10 22	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.9	40.06	.34	34.8	3.3	36.62	.28	13.2	0.5	8.85	.24	41.7	2.6	6.06	.40	15.6	3.3	57.09	.25	28.2	1.3
10.9	40.40	.41	31.5	2.9	36.90	.31	13.7	0.7	9.09	.27	39.1	2.4	6.46	.49	12.3	2.9	57.34	.27	29.5	1.3
20.9	40.81	.46	28.6	2.4	37.21	.33	14.4	0.8	9.36	.29	36.7	2.2	6.95	.57	9.4	2.4	57.61	.29	30.8	1.3
30.8	41.27	.50	26.2	1.8	37.54	.33	15.2	0.9	9.65	.30	34.5	1.7	7.52	.62	7.0	1.8	57.90	.30	32.1	1.2
Feb. 9.8	41.77	.52	24.4	1.2	37.87	.33	16.1	0.9	9.95	.31	32.8	1.3	8.14	.66	5.2	1.2	58.20	.31	33.3	1.0
19.8	42.29	.52	23.2	0.5	38.20	.33	17.0	0.9	10.26	.31	31.5	0.9	8.80	.67	4.0	0.5	58.51	.30	34.3	0.9
Mar. 1.8	42.81	.51	22.7	0.2	38.53	.32	17.9	0.9	10.57	.29	30.6	0.3	9.47	.65	3.5	0.2	58.81	.30	35.2	0.7
11.7	43.32	.48	22.9	0.8	38.85	.31	18.8	0.8	10.86	.28	30.3	0.1	10.12	.62	3.7	0.8	59.11	.28	35.9	0.5
21.7	43.80	.45	23.7	1.4	39.16	.29	19.6	0.8	11.14	.27	30.4	0.6	10.74	.58	4.5	1.5	59.39	.26	36.4	0.3
31.7	44.25	.39	25.1	2.0	39.45	.26	20.4	0.7	11.41	.24	31.0	1.0	11.32	.50	6.0	2.0	59.65	.25	36.7	0.1
Apr. 10.6	44.64	.33	27.1	2.5	39.71	.25	21.1	0.7	11.65	.22	32.0	1.4	11.82	.43	8.0	2.5	59.90	.23	36.8	0.0
20.6	44.97	.27	29.6	2.8	39.96	.22	21.8	0.6	11.87	.19	33.4	1.7	12.25	.35	10.5	2.8	60.13	.20	36.8	0.2
30.6	45.24	.20	32.4	3.0	40.18	.19	22.4	0.6	12.06	.16	35.1	1.9	12.60	.24	13.3	3.0	60.33	.18	36.6	0.4
May 10.6	45.44	.12	35.4	3.2	40.37	.16	23.0	0.5	12.22	.12	37.0	2.1	12.84	.14	16.3	3.2	60.51	.15	36.2	0.4
20.5	45.56	.05	38.6	3.2	40.53	.12	23.5	0.5	12.34	.10	39.1	2.2	12.98	.04	19.5	3.3	60.66	.12	35.8	0.5
30.5	45.61	.02	41.8	3.1	40.65	.09	24.0	0.4	12.44	.06	41.3	2.1	13.02	.05	22.8	3.2	60.78	.09	35.3	0.5
June 9.5	45.59	.10	44.9	3.0	40.74	.06	24.4	0.4	12.50	.02	43.4	2.1	12.97	.16	26.0	3.0	60.87	.06	34.8	0.5
19.5	45.49	.17	47.9	2.7	40.80	.01	24.8	0.4	12.52	.01	45.5	1.9	12.81	.25	29.0	2.7	60.93	.02	34.3	0.5
29.4	45.32	.24	50.6	2.4	40.81	.02	25.2	0.3	12.51	.05	47.4	1.8	12.56	.34	31.7	2.5	60.95	.02	33.8	0.5
July 9.4	45.08	.29	53.0	2.1	40.79	.06	25.5	0.2	12.46	.09	49.2	1.5	12.22	.42	34.2	2.1	60.93	.05	33.3	0.4
19.4	44.79	.35	55.1	1.6	40.73	.10	25.7	0.2	12.37	.11	50.7	1.3	11.80	.48	36.3	1.6	60.88	.09	32.9	0.4
29.3	44.44	.39	56.7	1.1	40.63	.13	25.9	0.1	12.26	.15	52.0	1.0	11.32	.54	37.9	1.2	60.79	.11	32.5	0.4
Aug. 8.3	44.05	.42	57.8	0.7	40.50	.16	26.0	0.1	12.11	.17	53.0	0.7	10.78	.58	39.1	0.6	60.68	.14	32.1	0.3
18.3	43.63	.44	58.5	0.1	40.34	.18	25.9	0.1	11.94	.18	53.7	0.4	10.20	.61	39.7	0.2	60.54	.16	31.8	0.2
28.3	43.19	.45	58.6	0.3	40.16	.18	25.8	0.2	11.76	.19	54.1	0.0	9.59	.62	39.9	0.4	60.38	.17	31.6	0.2
Sept. 7.2	42.74	.45	58.3	0.9	39.98	.19	25.6	0.4	11.57	.20	54.1	0.3	8.97	.62	39.5	0.9	60.21	.17	31.4	0.1
17.2	42.29	.44	57.4	1.4	39.79	.18	25.2	0.4	11.37	.18	53.8	0.7	8.35	.59	38.6	1.4	60.04	.17	31.3	0.1
27.2	41.85	.40	56.0	1.9	39.61	.15	24.8	0.5	11.19	.17	53.1	1.0	7.76	.56	37.2	1.9	59.87	.15	31.2	0.1
Oct. 7.2	41.45	.35	54.1	2.4	39.46	.13	24.3	0.5	11.02	.15	52.1	1.4	7.20	.50	35.3	2.3	59.72	.12	31.3	0.1
17.1	41.10	.30	51.7	2.8	39.33	.08	23.8	0.5	10.87	.10	50.7	1.7	6.70	.43	33.0	2.8	59.60	.09	31.4	0.3
27.1	40.80	.23	48.9	3.1	39.25	.04	23.3	0.4	10.77	.07	49.0	2.0	6.27	.34	30.2	3.2	59.51	.04	31.7	0.4
Nov. 6.1	40.57	.14	45.8	3.5	39.21	.01	22.9	0.4	10.70	.02	47.0	2.2	5.93	.24	27.0	3.4	59.47	.00	32.1	0.5
16.0	40.43	.06	42.3	3.7	39.22	.07	22.5	0.2	10.68	.04	44.8	2.5	5.69	.13	23.6	3.7	59.47	.05	32.6	0.8
26.0	40.37	.03	38.6	3.8	39.29	.12	22.3	0.0	10.72	.08	42.3	2.7	5.56	.01	19.9	3.8	59.52	.11	33.4	0.9
Dec. 6.0	40.40	.13	34.8	3.8	39.41	.18	22.3	0.1	10.80	.13	39.6	2.8	5.55	.11	16.1	3.8	59.63	.15	34.3	1.0
16.0	40.53	.21	31.0	3.7	39.59	.22	22.4	0.3	10.93	.18	36.8	2.8	5.66	.23	12.3	3.7	59.78	.19	35.3	1.2
25.9	40.74	.30	27.3	3.5	39.81	.26	22.7	0.5	11.11	.23	34.0	2.8	5.89	.34	8.6	3.6	59.97	.23	36.5	1.3
35.9	41.04		23.8		40.07		23.2		11.34		31.2		6.23		5.0		60.20		37.8	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Triang. Australis.				η Herculis.				κ Ophiuchi.				ε Ursæ Minoris.				*d* Herculis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 16 38		° ′ −68 50		h m 16 39		° ′ +39 5		h m 16 53		° ′ + 9 31		h m 16 55		° ′ +82 11		h m 16 58		° ′ +33 42	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.9	38.17	.57	63.1	1.6	38.29	.24	63.7	3.2	11.26	.22	20.4	2.1	25.61	0.70	34.3	3.3	6.06	.22	16.9	3.1
10.9	38.74	.65	61.5	1.3	38.53	.28	60.5	2.8	11.48	.25	18.3	2.1	26.31	0.98	31.0	3.0	6.28	.26	13.8	2.8
20.9	39.39	.70	60.2	0.8	38.81	.31	57.7	2.5	11.73	.27	16.2	1.9	27.29	1.22	28.0	2.5	6.54	.28	11.0	2.4
30.8	40.09	.74	59.4	0.4	39.12	.34	55.2	2.0	12.00	.28	14.3	1.6	28.51	1.41	25.5	2.0	6.82	.31	8.6	2.1
Feb. 9.8	40.83	.76	59.0	0.0	39.46	.34	53.2	1.4	12.28	.29	12.7	1.3	29.92	1.54	23.5	1.4	7.13	.32	6.5	1.5
19.8	41.59	.76	59.0	0.4	39.80	.35	51.8	0.9	12.57	.29	11.4	0.9	31.46	1.63	22.1	0.8	7.45	.33	5.0	1.0
Mar. 1.8	42.35	.75	59.4	0.8	40.15	.34	50.9	0.2	12.86	.29	10.5	0.5	33.09	1.64	21.3	0.1	7.78	.32	4.0	0.5
11.7	43.10	.72	60.2	1.2	40.49	.32	50.7	0.3	13.15	.28	10.0	0.2	34.73	1.60	21.2	0.6	8.10	.32	3.5	0.2
21.7	43.82	.69	61.4	1.5	40.81	.31	51.0	0.9	13.43	.27	9.8	0.3	36.33	1.51	21.8	1.2	8.42	.30	3.7	0.7
31.7	44.51	.64	62.9	1.8	41.12	.28	51.9	1.5	13.70	.25	10.1	0.6	37.84	1.35	23.0	1.7	8.72	.28	4.4	1.2
Apr. 10.7	45.15	.59	64.7	2.1	41.40	.25	53.4	1.9	13.95	.23	10.7	0.9	39.19	1.16	24.7	2.2	9.00	.25	5.6	1.6
20.6	45.74	.52	66.8	2.3	41.65	.22	55.3	2.3	14.18	.21	11.6	1.2	40.35	0.93	26.9	2.7	9.25	.23	7.2	2.1
30.6	46.26	.44	69.1	2.4	41.87	.18	57.6	2.5	14.39	.18	12.8	1.4	41.28	0.68	29.6	2.9	9.48	.19	9.3	2.3
May 10.6	46.70	.36	71.5	2.6	42.05	.14	60.1	2.7	14.57	.16	14.2	1.5	41.96	0.40	32.5	3.1	9.67	.16	11.6	2.6
20.5	47.06	.27	74.1	2.6	42.19	.10	62.8	2.8	14.73	.13	15.7	1.6	42.36	0.12	35.6	3.1	9.83	.12	14.2	2.6
30.5	47.33	.18	76.7	2.7	42.29	.05	65.6	2.8	14.86	.09	17.3	1.7	42.48	0.16	38.7	3.2	9.95	.08	16.8	2.7
June 9.5	47.51	.07	79.4	2.6	42.34	.01	68.4	2.7	14.95	.06	19.0	1.6	42.32	0.43	41.9	3.0	10.03	.04	19.5	2.7
19.5	47.58	.02	82.0	2.4	42.35	.03	71.1	2.6	15.01	.02	20.6	1.6	41.89	0.69	44.9	2.8	10.07	.01	22.2	2.5
29.5	47.56	.12	84.4	2.3	42.32	.08	73.7	2.3	15.03	.01	22.2	1.4	41.20	0.94	47.7	2.6	10.06	.05	24.7	2.3
July 9.4	47.44	.22	86.7	2.1	42.24	.12	76.0	2.0	15.02	.05	23.6	1.3	40.26	1.15	50.3	2.2	10.01	.08	27.0	2.0
19.4	47.22	.31	88.8	1.8	42.12	.16	78.0	1.7	14.97	.08	24.9	1.1	39.11	1.35	52.5	1.9	9.93	.13	29.0	1.8
29.4	46.91	.39	90.6	1.4	41.96	.19	79.7	1.3	14.89	.12	26.0	0.9	37.76	1.50	54.4	1.4	9.80	.16	30.8	1.4
Aug. 8.3	46.52	.45	92.0	0.9	41.77	.22	81.0	0.9	14.77	.14	26.9	0.7	36.26	1.62	55.8	0.9	9.64	.20	32.2	1.1
18.3	46.07	.50	92.9	0.6	41.55	.24	81.9	0.5	14.63	.16	27.6	0.4	34.64	1.72	56.7	0.5	9.44	.21	33.3	0.6
28.3	45.57	.52	93.5	0.0	41.31	.25	82.4	0.0	14.47	.18	28.0	0.2	32.92	1.76	57.2	0.1	9.23	.23	33.9	0.2
Sept. 7.2	45.05	.53	93.5	0.4	41.06	.25	82.4	0.5	14.29	.18	28.2	0.0	31.16	1.78	57.1	0.6	9.00	.23	34.1	0.1
17.2	44.52	.50	93.1	0.9	40.81	.25	81.9	0.8	14.11	.18	28.2	0.3	29.38	1.74	56.5	1.0	8.77	.24	34.0	0.7
27.2	44.02	.46	92.2	1.4	40.56	.23	81.1	1.4	13.93	.17	27.9	0.6	27.64	1.67	55.5	1.6	8.53	.21	33.3	1.0
Oct. 7.2	43.56	.40	90.8	1.7	40.33	.20	79.7	1.7	13.76	.14	27.3	0.8	25.97	1.55	53.9	2.0	8.32	.20	32.3	1.5
17.1	43.16	.30	89.1	2.1	40.13	.17	78.0	2.2	13.62	.11	26.5	1.1	24.42	1.40	51.9	2.5	8.12	.16	30.8	1.9
27.1	42.86	.19	87.0	2.3	39.96	.11	75.8	2.6	13.51	.08	25.4	1.3	23.02	1.20	49.4	2.8	7.96	.12	28.9	2.2
Nov. 6.1	42.67	.08	84.7	2.4	39.85	.07	73.2	2.8	13.43	.03	24.1	1.6	21.82	0.97	46.6	3.2	7.84	.08	26.7	2.6
16.1	42.59	.05	82.3	2.5	39.78	.01	70.4	3.2	13.40	.02	22.5	1.8	20.85	0.70	43.4	3.4	7.76	.02	24.1	2.9
26.0	42.64	.18	79.8	2.5	39.77	.05	67.2	3.3	13.42	.07	20.7	2.0	20.15	0.41	40.0	3.6	7.74	.04	21.2	3.0
Dec. 6.0	42.82	.30	77.3	2.3	39.82	.11	63.9	3.4	13.49	.11	18.7	2.2	19.74	0.10	36.4	3.7	7.78	.09	18.2	3.2
16.0	43.12	.42	75.0	2.1	39.93	.17	60.5	3.4	13.60	.16	16.5	2.2	19.64	0.21	32.7	3.6	7.87	.15	15.0	3.3
25.9	43.54	.52	72.9	1.8	40.10	.21	57.1	3.3	13.76	.20	14.3	2.2	19.85	0.51	29.1	3.5	8.02	.19	11.7	3.1
35.9	44.06		71.1		40.31		53.8		13.96		12.1		20.36		25.6		8.21		8.6	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Ophiuchi.				α¹ Herculis.				π Herculis.				θ Ophiuchi.				b Ophiuchi.			
	Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *South*.	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	17 4		−15 36		17 10		+14 29		17 11		+36 54		17 16		−24 54		17 20		−24 5	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.9	57.19	.23	22.7	0.9	19.77	.21	54.6	2.4	44.26	.20	56.0	3.2	12.03	.24	12.0	0.3	35.58	.23	11.9	0.3
10.9	57.42	.26	23.6	0.9	19.98	.23	52.2	2.2	44.46	.25	52.8	2.9	12.27	.26	12.3	0.4	35.81	.26	12.2	0.4
20.9	57.68	.28	24.5	0.9	20.21	.26	50.0	2.1	44.71	.28	49.9	2.6	12.53	.29	12.7	0.4	36.07	.29	12.6	0.4
30.9	57.96	.30	25.4	0.9	20.47	.28	47.9	1.7	44.99	.31	47.3	2.2	12.82	.31	13.1	0.5	36.36	.31	13.0	0.5
Feb. 9.8	58.26	.30	26.3	0.8	20.75	.29	46.2	1.4	45.30	.32	45.1	1.7	13.13	.32	13.6	0.5	36.67	.31	13.5	0.5
19.8	58.56	.31	27.1	0.7	21.04	.29	44.8	1.0	45.62	.33	43.4	0.1	13.45	.33	14.1	0.5	36.98	.32	14.0	0.5
Mar. 1.8	58.87	.30	27.8	0.6	21.33	.29	43.8	0.5	45.95	.33	42.3	0.5	13.78	.32	14.6	0.5	37.30	.33	14.5	0.5
11.8	59.17	.30	28.4	0.4	21.62	.29	43.3	0.2	46.28	.33	41.8	0.1	14.10	.32	15.1	0.4	37.63	.31	15.0	0.4
21.7	59.47	.29	28.8	0.3	21.91	.27	43.1	0.4	46.61	.31	41.9	0.6	14.42	.31	15.5	0.4	37.94	.31	15.4	0.3
31.7	59.76	.27	29.1	0.1	22.18	.26	43.5	0.7	46.92	.30	42.5	1.2	14.73	.29	15.9	0.3	38.25	.30	15.7	0.3
Apr. 10.7	60.03	.26	29.2	0.0	22.44	.25	44.2	1.1	47.22	.27	43.7	1.7	15.02	.28	16.2	0.3	38.55	.28	16.0	0.2
20.6	60.29	.23	29.2	0.1	22.69	.22	45.3	1.4	47.49	.25	45.4	2.1	15.30	.26	16.5	0.2	38.83	.26	16.2	0.2
30.6	60.52	.21	29.1	0.2	22.91	.20	46.7	1.6	47.74	.21	47.5	2.4	15.56	.23	16.7	0.3	39.09	.23	16.4	0.1
May 10.6	60.73	.19	28.9	0.3	23.11	.17	48.3	1.8	47.95	.17	49.9	2.6	15.79	.21	17.0	0.2	39.32	.22	16.5	0.2
20.6	60.92	.16	28.6	0.3	23.28	.14	50.1	1.9	48.12	.14	52.5	2.8	16.00	.18	17.2	0.2	39.54	.18	16.7	0.1
30.5	61.08	.12	28.3	0.3	23.42	.10	52.0	1.9	48.26	.09	55.3	2.8	16.18	.15	17.4	0.2	39.72	.15	16.8	0.2
June 9.5	61.20	.09	28.0	0.2	23.52	.07	53.9	1.9	48.35	.04	58.1	2.8	16.33	.10	17.6	0.2	39.87	.11	17.0	0.1
19.5	61.29	.05	27.8	0.3	23.59	.04	55.8	1.9	48.39	.01	60.9	2.6	16.43	.07	17.8	0.3	39.98	.07	17.1	0.2
29.5	61.34	.01	27.5	0.2	23.63	.01	57.7	1.7	48.40	.05	63.5	2.5	16.50	.02	18.1	0.2	40.05	.03	17.3	0.3
July 9.4	61.35	.02	27.3	0.2	23.62	.04	59.4	1.5	48.35	.08	66.0	2.3	16.52	.02	18.3	0.3	40.08	.02	17.6	0.2
19.4	61.33	.07	27.1	0.2	23.58	.08	60.9	1.4	48.27	.13	68.3	1.9	16.50	.06	18.6	0.2	40.06	.06	17.8	0.2
29.4	61.26	.10	26.9	0.2	23.50	.11	62.3	1.1	48.14	.17	70.2	1.6	16.44	.09	18.8	0.2	40.00	.09	18.0	0.2
Aug. 8.3	61.16	.13	26.7	0.1	23.39	.14	63.4	0.8	47.97	.20	71.8	1.2	16.35	.14	19.0	0.2	39.91	.13	18.2	0.2
18.3	61.03	.16	26.6	0.2	23.25	.17	64.2	0.6	47.77	.22	73.0	0.8	16.21	.16	19.2	0.1	39.78	.16	18.4	0.1
28.3	60.87	.17	26.4	0.1	23.08	.17	64.8	0.3	47.55	.24	73.8	0.3	16.05	.18	19.3	0.0	39.62	.18	18.5	0.0
Sept. 7.3	60.70	.18	26.3	0.1	22.91	.19	65.1	0.0	47.31	.25	74.1	0.1	15.87	.19	19.3	0.0	39.44	.19	18.5	0.0
17.2	60.52	.17	26.2	0.0	22.72	.20	65.1	0.3	47.06	.25	74.0	0.5	15.68	.19	19.3	0.2	39.25	.19	18.5	0.1
27.2	60.35	.17	26.2	0.1	22.52	.18	64.8	0.6	46.81	.24	73.5	1.0	15.49	.18	19.1	0.2	39.06	.18	18.4	0.2
Oct. 7.2	60.18	.14	26.1	0.0	22.34	.16	64.2	0.9	46.57	.21	72.5	1.4	15.31	.16	18.9	0.3	38.88	.16	18.2	0.2
17.2	60.04	.11	26.1	0.0	22.18	.13	63.3	1.2	46.36	.19	71.1	1.8	15.15	.12	18.6	0.2	38.72	.13	18.0	0.3
27.1	59.93	.08	26.1	0.2	22.05	.09	62.1	1.5	46.17	.14	69.3	2.2	15.03	.09	18.4	0.3	38.59	.08	17.7	0.2
Nov. 6.1	59.85	.02	26.3	0.2	21.96	.05	60.6	1.8	46.03	.10	67.1	2.6	14.94	.04	18.1	0.3	38.51	.04	17.5	0.2
16.1	59.83	.02	26.5	0.4	21.91	.00	58.8	2.0	45.93	.04	64.5	2.9	14.90	.02	17.8	0.2	38.47	.01	17.3	0.2
26.0	59.85	.08	26.9	0.5	21.91	.05	56.8	2.2	45.89	.02	61.6	3.1	14.92	.07	17.6	0.1	38.48	.06	17.1	0.0
Dec. 6.0	59.93	.12	27.4	0.6	21.96	.09	54.6	2.3	45.91	.07	58.5	3.3	14.99	.12	17.5	0.0	38.54	.12	17.1	0.0
16.0	60.05	.17	28.0	0.7	22.05	.14	52.3	2.4	45.98	.12	55.2	3.3	15.11	.17	17.5	0.1	38.66	.16	17.1	0.2
26.0	60.22	.21	28.7	0.9	22.19	.18	49.9	2.4	46.10	.18	51.9	3.3	15.28	.21	17.6	0.3	38.82	.21	17.3	0.3
35.9	60.43		29.6		22.37		47.5		46.28		48.6		15.49		17.9		39.03		17.6	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Aræ.				β Draconis.				α Ophiuchi.				ι Herculis.				ω Draconis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 17 22		° ′ −60 36		h m 17 28		° ′ +52 22		h m 17 30		° ′ +12 37		h m 17 36		° ′ +46 3		h m 17 37		° ′ +68 47	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.0	33.04	.37	8.9	1.7	16.01	.19	17.3	3.5	32.33	.19	46.4	2.3	46.41	.18	25.3	3.4	26.35	.22	67.9	3.6
10.9	33.41	.44	7.2	1.4	16.20	.26	13.8	3.2	32.52	.22	44.1	2.2	46.59	.24	21.9	3.2	26.57	.34	64.3	3.3
20.9	33.85	.49	5.8	1.1	16.46	.31	10.6	2.9	32.74	.24	41.9	1.9	46.83	.27	18.7	2.9	26.91	.43	61.0	3.0
30.9	34.34	.52	4.7	0.8	16.77	.36	7.7	2.5	32.98	.27	40.0	1.8	47.10	.32	15.8	2.4	27.34	.51	58.0	2.6
Feb. 9.8	34.86	.56	3.9	0.5	17.13	.38	5.2	1.9	33.25	.28	38.2	1.4	47.42	.34	13.4	2.0	27.85	.57	55.4	2.0
19.8	35.42	.56	3.4	0.1	17.51	.40	3.3	1.3	33.53	.28	36.8	1.0	47.76	.36	11.4	1.3	28.42	.62	53.4	1.4
Mar. 1.8	35.98	.57	3.3	0.2	17.91	.41	2.0	0.6	33.81	.29	35.8	0.6	48.12	.36	10.1	0.8	29.04	.65	52.0	0.7
11.8	36.55	.57	3.5	0.5	18.32	.41	1.4	0.0	34.10	.29	35.2	0.2	48.48	.37	9.3	0.1	29.69	.64	51.3	0.0
21.7	37.12	.55	4.0	0.8	18.73	.39	1.4	0.6	34.39	.28	35.0	0.3	48.85	.36	9.2	0.6	30.33	.63	51.3	0.6
31.7	37.67	.53	4.8	1.0	19.12	.38	2.0	1.3	34.67	.27	35.3	0.6	49.21	.34	9.8	1.1	30.96	.60	51.9	1.3
Apr. 10.7	38.20	.49	5.8	1.3	19.50	.34	3.3	1.8	34.94	.25	35.9	1.0	49.55	.32	10.9	1.7	31.56	.54	53.2	1.8
20.7	38.69	.46	7.1	1.6	19.84	.31	5.1	2.3	35.19	.24	36.9	1.3	49.87	.29	12.6	2.1	32.10	.48	55.0	2.3
30.6	39.15	.41	8.7	1.7	20.15	.26	7.4	2.7	35.43	.21	38.2	1.6	50.16	.25	14.7	2.5	32.58	.39	57.3	2.8
May 10.6	39.56	.37	10.4	2.0	20.41	.21	10.1	2.9	35.64	.19	39.8	1.7	50.41	.21	17.2	2.8	32.97	.31	60.1	3.0
20.6	39.93	.30	12.4	2.0	20.62	.16	13.0	3.1	35.83	.16	41.5	1.8	50.62	.17	20.0	3.0	33.28	.21	63.1	3.2
30.5	40.23	.23	14.4	2.1	20.78	.10	16.1	3.2	35.99	.13	43.3	1.9	50.79	.12	23.0	3.1	33.49	.11	66.3	3.3
June 9.5	40.46	.16	16.5	2.2	20.88	.04	19.3	3.2	36.12	.09	45.2	1.9	50.91	.06	26.1	3.1	33.60	.01	69.6	3.4
19.5	40.62	.09	18.7	2.2	20.92	.02	22.5	3.0	36.21	.06	47.1	1.8	50.97	.01	29.2	3.0	33.61	.10	73.0	3.2
29.5	40.71	.01	20.9	2.1	20.90	.07	25.5	2.9	36.27	.01	48.9	1.7	50.98	.04	32.2	2.9	33.51	.19	76.2	3.0
July 9.4	40.72	.07	23.0	2.0	20.83	.14	28.4	2.6	36.28	.03	50.6	1.6	50.94	.10	35.1	2.6	33.32	.29	79.2	2.8
19.4	40.65	.15	25.0	1.8	20.69	.19	31.0	2.3	36.25	.06	52.2	1.3	50.84	.14	37.7	2.3	33.03	.38	82.0	2.4
29.4	40.50	.21	26.8	1.5	20.50	.24	33.3	2.0	36.19	.10	53.5	1.1	50.70	.19	40.0	1.9	32.65	.46	84.4	2.1
Aug. 8.4	40.29	.27	28.3	1.3	20.26	.28	35.3	1.5	36.09	.13	54.6	0.9	50.51	.23	41.9	1.6	32.19	.52	86.5	1.7
18.3	40.02	.33	29.6	0.9	19.98	.31	36.8	1.0	35.96	.15	55.5	0.7	50.28	.26	43.5	1.1	31.67	.58	88.2	1.2
28.3	39.69	.36	30.5	0.5	19.67	.34	37.8	0.6	35.81	.18	56.2	0.4	50.02	.29	44.6	0.6	31.09	.61	89.4	0.6
Sept. 7.3	39.33	.38	31.0	0.1	19.33	.35	38.4	0.1	35.63	.19	56.6	0.1	49.73	.30	45.2	0.2	30.48	.64	90.0	0.2
17.2	38.95	.38	31.1	0.4	18.98	.36	38.5	0.5	35.44	.19	56.7	0.2	49.43	.30	45.4	0.3	29.84	.65	90.2	0.3
27.2	38.57	.36	30.7	0.7	18.62	.34	38.0	0.9	35.25	.18	56.5	0.5	49.13	.30	45.1	0.8	29.19	.63	89.9	0.9
Oct. 7.2	38.21	.32	30.0	1.1	18.28	.32	37.1	1.5	35.07	.16	56.0	0.7	48.83	.28	44.3	1.3	28.56	.60	89.0	1.4
17.2	37.89	.27	28.9	1.5	17.96	.28	35.6	1.9	34.91	.14	55.3	1.1	48.55	.24	43.0	1.7	27.96	.55	87.6	1.9
27.1	37.62	.20	27.4	1.7	17.68	.24	33.7	2.4	34.77	.11	54.2	1.3	48.31	.21	41.3	2.2	27.41	.49	85.7	2.4
Nov. 6.1	37.42	.11	25.7	2.0	17.44	.19	31.3	2.8	34.66	.06	52.9	1.6	48.10	.16	39.1	2.6	26.92	.40	83.3	2.8
16.1	37.31	.03	23.7	2.1	17.25	.12	28.5	3.1	34.60	.02	51.3	1.8	47.94	.10	36.5	3.0	26.52	.30	80.5	3.2
26.1	37.28	.07	21.6	2.1	17.13	.05	25.4	3.4	34.58	.03	49.5	2.1	47.84	.04	33.5	3.2	26.22	.20	77.3	3.5
Dec. 6.0	37.35	.17	19.5	2.1	17.08	.02	22.0	3.6	34.61	.07	47.4	2.2	47.80	.02	30.3	3.4	26.02	.08	73.8	3.6
16.0	37.52	.25	17.4	2.0	17.10	.09	18.4	3.6	34.68	.12	45.2	2.3	47.82	.08	26.9	3.6	25.94	.04	70.2	3.7
26.0	37.77	.33	15.4	1.8	17.19	.16	14.8	3.6	34.80	.17	42.9	2.3	47.90	.15	23.3	3.5	25.98	.15	66.5	3.7
35.9	38.10		13.6		17.35		11.2		34.97		40.6		48.05		19.8		26.13		62.8	

FIXED STARS, 1906.

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	μ Herculis.				ψ^1 Draconis.				θ Herculis.				γ Draconis.				γ^2 Sagittarii.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination South.	
	h m 17 42		° ′ +27 46		h m 17 43		° ′ +72 11		h m 17 52		° ′ +37 15		h m 17 54		° ′ +51 29		h m 17 59		° ′ −30 25	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.0	44.77	.17	35.6	2.9	32.26	.22	45.6	3.6	59.65	.16	49.8	3.2	22.96	.16	62.9	3.5	43.79	.20	24.1	0.3
10.9	44.94	.20	32.7	2.7	32.48	.36	42.0	3.4	59.81	.20	46.6	3.0	23.12	.22	59.4	3.3	43.99	.24	23.8	0.1
20.9	45.14	.25	30.0	2.5	32.84	.47	38.6	3.0	60.01	.24	43.6	2.8	23.34	.27	56.1	3.1	44.23	.27	23.7	0.1
30.9	45.39	.26	27.5	2.2	33.31	.58	35.6	2.6	60.25	.28	40.8	2.4	23.61	.32	53.0	2.6	44.50	.29	23.6	0.1
Feb. 9.9	45.65	.29	25.3	1.7	33.89	.65	33.0	2.1	60.53	.30	38.4	1.9	23.93	.35	50.4	2.1	44.79	.32	23.5	0.0
19.8	45.94	.30	23.6	1.3	34.54	.72	30.9	1.4	60.83	.31	36.5	1.4	24.28	.38	48.3	1.6	45.11	.33	23.5	0.0
Mar. 1.8	46.24	.30	22.3	0.8	35.26	.74	29.5	0.8	61.14	.33	35.1	0.9	24.66	.40	46.7	0.9	45.44	.33	23.5	0.1
11.8	46.54	.31	21.5	0.2	36.00	.76	28.7	0.1	61.47	.33	34.2	0.2	25.06	.40	45.8	0.3	45.77	.34	23.6	0.1
21.7	46.85	.29	21.3	0.4	36.76	.74	28.6	0.5	61.80	.32	34.0	0.3	25.46	.40	45.5	0.4	46.11	.33	23.7	0.0
31.7	47.14	.29	21.7	0.8	37.50	.70	29.1	1.2	62.12	.32	34.3	0.9	25.86	.38	45.9	1.0	46.44	.33	23.7	0.1
Apr. 10.7	47.43	.28	22.5	1.3	38.20	.64	30.3	1.7	62.44	.30	35.2	1.5	26.24	.36	46.9	1.6	46.77	.31	23.8	0.1
20.7	47.71	.25	23.8	1.7	38.84	.56	32.0	2.3	62.74	.28	36.7	1.9	26.60	.33	48.5	2.1	47.08	.31	23.9	0.1
30.6	47.96	.23	25.5	2.1	39.40	.46	34.3	2.6	63.02	.25	38.6	2.2	26.93	.29	50.6	2.5	47.39	.28	24.0	0.2
May 10.6	48.19	.20	27.6	2.3	39.86	.36	36.9	3.0	63.27	.21	40.8	2.6	27.22	.24	53.1	2.8	47.67	.26	24.2	0.3
20.6	48.39	.16	29.9	2.4	40.22	.25	39.9	3.2	63.48	.18	43.4	2.8	27.46	.19	55.9	3.1	47.93	.23	24.5	0.3
30.6	48.55	.13	32.3	2.6	40.47	.13	43.1	3.3	63.66	.14	46.2	2.9	27.65	.14	59.0	3.2	48.16	.19	24.8	0.3
June 9.5	48.68	.09	34.9	2.5	40.60	.00	46.4	3.3	63.80	.09	49.1	2.9	27.79	.08	62.2	3.2	48.35	.16	25.1	0.5
19.5	48.77	.05	37.4	2.5	40.60	.12	49.7	3.2	63.89	.04	52.0	2.8	27.87	.02	65.4	3.2	48.51	.12	25.6	0.4
29.5	48.82	.00	39.9	2.3	40.48	.23	52.9	3.0	63.93	.00	54.8	2.7	27.89	.04	68.6	3.0	48.63	.07	26.0	0.6
July 9.4	48.82	.03	42.2	2.2	40.25	.35	55.9	2.8	63.93	.04	57.5	2.5	27.85	.10	71.6	2.8	48.70	.02	26.6	0.6
19.4	48.79	.08	44.4	1.9	39.90	.45	58.7	2.5	63.89	.10	60.0	2.3	27.75	.15	74.4	2.5	48.72	.03	27.2	0.5
29.4	48.71	.12	46.3	1.6	39.45	.55	61.2	2.1	63.79	.14	62.3	2.0	27.60	.21	76.9	2.2	48.69	.07	27.7	0.6
Aug 8.4	48.59	.16	47.9	1.3	38.90	.62	63.3	1.7	63.65	.17	64.3	1.6	27.39	.25	79.1	1.8	48.62	.12	28.3	0.5
18.3	48.43	.18	49.2	1.0	38.28	.69	65.0	1.3	63.48	.21	65.9	1.2	27.14	.30	80.9	1.4	48.50	.15	28.8	0.5
28.3	48.25	.20	50.2	0.6	37.59	.74	66.3	0.7	63.27	.24	67.1	0.8	26.84	.32	82.3	0.9	48.35	.17	29.3	0.3
Sept. 7.3	48.05	.22	50.8	0.2	36.85	.76	67.0	0.3	63.03	.25	67.9	0.3	26.52	.34	83.2	0.4	48.18	.20	29.6	0.2
17.3	47.83	.22	51.0	0.2	36.09	.78	67.3	0.3	62.78	.26	68.2	0.1	26.18	.35	83.6	0.1	47.98	.21	29.8	0.1
27.2	47.61	.22	50.8	0.6	35.31	.76	67.0	0.8	62.52	.25	68.1	0.6	25.83	.34	83.5	0.6	47.77	.20	29.9	0.0
Oct. 7.2	47.39	.20	50.2	1.0	34.55	.73	66.2	1.3	62.27	.24	67.5	1.0	25.49	.33	82.9	1.1	47.57	.18	29.9	0.2
17.2	47.19	.18	49.2	1.4	33.82	.67	64.9	1.9	62.03	.21	66.5	1.4	25.16	.30	81.8	1.6	47.39	.16	29.7	0.3
27.1	47.01	.14	47.8	1.7	33.15	.60	63.0	2.3	61.82	.18	65.1	1.9	24.86	.26	80.2	2.1	47.23	.13	29.4	0.4
Nov. 6.1	46.87	.10	46.1	2.1	32.55	.51	60.7	2.8	61.64	.14	63.2	2.3	24.60	.21	78.1	2.5	47.10	.07	29.0	0.4
16.1	46.77	.06	44.0	2.4	32.04	.40	57.9	3.1	61.50	.08	60.9	2.6	24.39	.15	75.6	2.9	47.03	.03	28.6	0.5
26.1	46.71	.00	41.6	2.7	31.64	.27	54.8	3.4	61.42	.04	58.3	2.9	24.24	.09	72.7	3.3	47.00	.02	28.1	0.5
Dec. 6.0	46.71	.05	38.9	2.9	31.37	.14	51.4	3.6	61.38	.02	55.4	3.1	24.15	.02	69.4	3.4	47.02	.08	27.6	0.4
16.0	46.76	.09	36.0	2.9	31.23	.00	47.8	3.7	61.40	.07	52.3	3.3	24.13	.05	66.0	3.6	47.10	.13	27.2	0.4
26.0	46.85	.14	33.1	3.0	31.23	.14	44.1	3.7	61.47	.13	49.0	3.2	24.18	.12	62.4	3.6	47.23	.18	26.8	0.3
36.0	46.99		30.1		31.37		40.4		61.60		45.8		24.30		58.8		47.41		26.5	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*o* Herculis.				*μ* Sagittarii.				*η* Serpentis.				*λ* Sagittarii.				*χ* Draconis.			
	Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	18 3		+28 44		18 8		−21 4		18 16		− 2 55		18 22		−25 28		18 22		+72 41	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.0	50.53	.14	62.1	2.9	6.32	.18	54.6	0.3	24.73	.15	18.7	1.3	7.92	.17	20.3	0.1	41.06	.11	37.5	3.7
11.0	50.67	.19	59.2	2.8	6.50	.21	54.9	0.3	24.88	.19	20.0	1.3	8.09	.21	20.2	0.0	41.17	.24	33.8	3.5
20.9	50.86	.23	56.4	2.6	6.71	.25	55.2	0.3	25.07	.21	21.3	1.3	8.30	.24	20.2	0.0	41.41	.38	30.3	3.3
30.9	51.09	.25	53.8	2.2	6.96	.27	55.5	0.3	25.28	.24	22.6	1.1	8.54	.26	20.2	0.0	41.79	.49	27.0	2.9
Feb. 9.9	51.34	.27	51.6	1.8	7.23	.28	55.8	0.2	25.52	.26	23.7	0.9	8.80	.29	20.2	0.0	42.28	.59	24.1	2.5
19.8	51.61	.29	49.8	1.4	7.51	.30	56.0	0.2	25.78	.27	24.6	0.7	9.09	.30	20.2	0.0	42.87	.68	21.6	1.9
Mar. 1.8	51.90	.30	48.4	0.8	7.81	.31	56.2	0.2	26.05	.28	25.3	0.4	9.39	.31	20.2	0.1	43.55	.73	19.7	1.3
11.8	52.20	.31	47.6	0.3	8.12	.31	56.4	0.0	26.33	.28	25.7	0.2	9.70	.32	20.1	0.1	44.28	.76	18.4	0.6
21.8	52.51	.31	47.3	0.2	8.43	.31	56.4	0.0	26.61	.29	25.9	0.2	10.02	.32	20.0	0.1	45.04	.77	17.8	0.0
31.7	52.82	.29	47.5	0.7	8.74	.30	56.4	0.2	26.90	.28	25.7	0.4	10.34	.32	19.9	0.2	45.81	.76	17.8	0.7
Apr. 10.7	53.11	.29	48.2	1.3	9.04	.30	56.2	0.2	27.18	.28	25.3	0.6	10.66	.31	19.7	0.2	46.57	.71	18.5	1.3
20.7	53.40	.27	49.5	1.7	9.34	.28	56.0	0.2	27.46	.26	24.7	0.8	10.97	.30	19.5	0.2	47.28	.65	19.8	1.8
30.7	53.67	.24	51.2	2.0	9.62	.27	55.8	0.3	27.72	.25	23.9	1.0	11.27	.29	19.3	0.2	47.93	.57	21.6	2.3
May 10.6	53.91	.22	53.2	2.3	9.89	.25	55.5	0.3	27.97	.23	22.9	1.1	11.56	.27	19.1	0.1	48.50	.47	23.9	2.8
20.6	54.13	.19	55.5	2.5	10.14	.22	55.2	0.2	28.20	.21	21.8	1.2	11.83	.23	19.0	0.1	48.97	.36	26.7	3.0
30.6	54.32	.15	58.0	2.6	10.36	.19	55.0	0.2	28.41	.17	20.6	1.2	12.06	.21	18.9	0.0	49.33	.25	29.7	3.2
June 9.5	54.47	.11	60.6	2.7	10.55	.15	54.8	0.2	28.58	.15	19.4	1.2	12.27	.18	18.9	0.0	49.58	.12	32.9	3.4
19.5	54.58	.07	63.3	2.6	10.70	.12	54.6	0.1	28.73	.10	18.2	1.2	12.45	.13	18.9	0.2	49.70	.00	36.3	3.3
29.5	54.65	.03	65.9	2.5	10.82	.07	54.5	0.0	28.83	.07	17.0	1.0	12.58	.09	19.1	0.2	49.70	.13	39.6	3.3
July 9.5	54.68	.02	68.4	2.3	10.89	.03	54.5	0.1	28.90	.03	16.0	1.0	12.67	.04	19.3	0.3	49.57	.26	42.9	3.1
19.4	54.66	.07	70.7	2.1	10.92	.02	54.6	0.1	28.93	.02	15.0	0.8	12.71	.00	19.6	0.3	49.31	.37	46.0	2.8
29.4	54.59	.10	72.8	1.8	10.90	.06	54.7	0.1	28.91	.06	14.2	0.6	12.71	.05	19.9	0.4	48.94	.48	48.8	2.6
Aug. 8.4	54.49	.15	74.6	1.5	10.84	.10	54.8	0.2	28.85	.09	13.6	0.5	12.66	.10	20.3	0.4	48.46	.57	51.4	2.2
18.4	54.34	.17	76.1	1.2	10.74	.13	55.0	0.2	28.76	.13	13.1	0.4	12.56	.13	20.7	0.4	47.89	.65	53.6	1.8
28.3	54.17	.20	77.3	0.8	10.61	.16	55.2	0.2	28.63	.15	12.7	0.2	12.43	.15	21.1	0.3	47.24	.72	55.4	1.3
Sept. 7.3	53.97	.22	78.1	0.4	10.45	.18	55.4	0.1	28.48	.17	12.5	0.1	12.28	.19	21.4	0.3	46.52	.76	56.7	0.9
17.3	53.75	.23	78.5	0.0	10.27	.19	55.5	0.1	28.31	.18	12.4	0.0	12.09	.19	21.7	0.2	45.76	.80	57.6	0.3
27.2	53.52	.22	78.5	0.4	10.08	.19	55.6	0.1	28.13	.18	12.4	0.2	11.90	.19	21.9	0.1	44.96	.80	57.9	0.2
Oct. 7.2	53.30	.21	78.1	0.8	9.89	.17	55.7	0.0	27.95	.17	12.6	0.4	11.71	.19	22.0	0.0	44.16	.78	57.7	0.7
17.2	53.09	.19	77.3	1.2	9.72	.15	55.7	0.0	27.78	.15	13.0	0.5	11.52	.16	22.0	0.1	43.38	.75	57.0	1.3
27.2	52.90	.16	76.1	1.6	9.57	.12	55.7	0.0	27.63	.12	13.5	0.6	11.36	.13	21.9	0.1	42.63	.69	55.7	1.7
Nov. 6.1	52.74	.12	74.5	2.0	9.45	.08	55.7	0.0	27.51	.09	14.1	0.8	11.23	.09	21.8	0.1	41.94	.60	54.0	2.3
16.1	52.62	.08	72.5	2.3	9.37	.03	55.7	0.0	27.42	.04	14.9	1.0	11 14	.05	21.7	0.2	41.34	.52	51.7	2.7
26.1	52.54	.02	70.2	2.6	9.34	.01	55.7	0.1	27.38	.00	15.9	1.1	11.09	.00	21.5	0.2	40.82	.39	49.0	3.1
Dec. 6.1	52.52	.02	67.6	2.7	9.35	.07	55.8	0.1	27.38	.04	17.0	1.2	11.09	.05	21.3	0.2	40.43	.27	45.9	3.4
16.0	52.54	.07	64.9	3.0	9.42	.11	55.9	0.2	27.42	.09	18.2	1.3	11.14	.10	21.1	0.1	40.16	.12	42.5	3.6
26.0	52.61	.12	61.9	2.9	9.53	.15	56.1	0.2	27.51	.13	19.5	1.3	11.24	.15	21.0	0.0	40.04	.01	38.9	3.6
36.0	52.73		59.0		9.68		56.3		27.64		20.8		11.39		21.0		40.05		35.3	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ι Aquilæ.				ζ Pavonis.				α Lyræ. (*Vega.*)				β Lyræ.				σ Sagittarii.			
	Right Ascension.		Declination *South*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.	
	h m 18 30		° ′ − 8 18		h m 18 31		° ′ −71 30		h m 18 33		° ′ +38 41		h m 18 46		° ′ +33 15		h m 18 49		° ′ −26 24	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.0	3.47	.15	30.7	1.0	57.29	.34	26.4	2.7	43.27	.10	50.8	3.2	34.56	.09	17.6	3.0	23.88	.14	45.2	0.2
11.0	3.62	.18	31.7	1.0	57.63	.46	23.7	2.5	43.37	.16	47.6	3.1	34.65	.14	14.6	3.0	24.02	.18	45.0	0.2
21.0	3.80	.21	32.7	0.9	58.09	.57	21.2	2.2	43.53	.20	44.5	2.9	34.79	.19	11.6	2.8	24.20	.22	44.8	0.2
30.9	4.01	.23	33.6	0.8	58.66	.65	19.0	2.0	43.73	.24	41.6	2.6	34.98	.22	8.8	2.5	24.42	.25	44.6	0.2
Feb. 9.9	4.24	.25	34.4	0.6	59.31	.73	17.0	1.7	43.97	.27	39.0	2.2	35.20	.24	6.3	2.1	24.67	.27	44.4	0.3
19.9	4.49	.27	35.0	0.5	60.04	.78	15.3	1.4	44.24	.30	36.8	1.7	35.44	.28	4.2	1.6	24.94	.29	44.1	0.2
Mar. 1.8	4.76	.28	35.5	0.3	60.82	.82	13.9	1.0	44.54	.31	35.1	1.2	35.72	.29	2.6	1.2	25.23	.30	43.9	0.3
11.8	5.04	.29	35.8	0.0	61.64	.84	12.9	0.6	44.85	.33	33.9	0.5	36.01	.31	1.4	0.6	25.53	.31	43.6	0.4
21.8	5.33	.29	35.8	0.1	62.48	.86	12.3	0.2	45.18	.33	33.4	0.0	36.32	.31	0.8	0.1	25.84	.32	43.2	0.3
31.8	5.62	.29	35.7	0.4	63.34	.84	12.1	0.2	45.51	.33	33.4	0.6	36.63	.32	0.7	0.5	26.16	.33	42.9	0.4
Apr. 10.7	5.91	.29	35.3	0.6	64.18	.83	12.3	0.5	45.84	.33	34.0	1.2	36.95	.31	1.2	1.1	26.49	.32	42.5	0.4
20.7	6.20	.27	34.7	0.8	65.01	.80	12.8	1.0	46.17	.31	35.2	1.7	37.26	.30	2.3	1.5	26.81	.31	42.1	0.4
30.7	6.47	.27	33.9	0.8	65.81	.74	13.8	1.2	46.48	.28	36.9	2.1	37.56	.28	3.8	2.0	27.12	.31	41.7	0.4
May 10.6	6.74	.24	33.1	1.0	66.55	.68	15.0	1.6	46.76	.26	39.0	2.5	37.84	.26	5.8	2.3	27.43	.28	41.3	0.3
20.6	6.98	.22	32.1	0.9	67.23	.60	16.6	1.9	47.02	.22	41.5	2.7	38.10	.23	8.1	2.6	27.71	.27	41.0	0.2
30.6	7.20	.20	31.2	1.0	67.83	.51	18.5	2.2	47.24	.18	44.2	2.9	38.33	.19	10.7	2.7	27.98	.23	40.8	0.1
June 9.6	7.40	.16	30.2	1.0	68.34	.40	20.7	2.4	47.42	.14	47.1	3.0	38.52	.16	13.4	2.9	28.21	.20	40.7	0.0
19.5	7.56	.12	29.2	0.9	68.74	.29	23.1	2.5	47.56	.09	50.1	3.0	38.68	.11	16.3	2.8	28.41	.16	40.7	0.1
29.5	7.68	.09	28.3	0.8	69.03	.17	25.6	2.5	47.65	.04	53.1	3.0	38.79	.06	19.1	2.9	28.57	.12	40.8	0.2
July 9.5	7.77	.04	27.5	0.6	69.20	.04	28.1	2.6	47.69	.00	56.1	2.8	38.85	.01	22.0	2.6	28.69	.07	41.0	0.3
19.5	7.81	.00	26.9	0.6	69.24	.08	30.7	2.5	47.69	.06	58.9	2.5	38.86	.03	24.6	2.5	28.76	.02	41.3	0.4
29.4	7.81	.05	26.3	0.5	69.16	.20	33.2	2.4	47.63	.11	61.4	2.4	38.83	.08	27.1	2.3	28.78	.02	41.7	0.4
Aug. 8.4	7.76	.08	25.8	0.3	68.96	.32	35.6	2.1	47.52	.15	63.8	2.0	38.75	.12	29.4	1.9	28.76	.07	42.1	0.5
18.4	7.68	.12	25.5	0.2	68.64	.42	37.7	1.8	47.37	.20	65.8	1.6	38.63	.17	31.3	1.6	28.69	.12	42.6	0.5
28.4	7.56	.14	25.3	0.1	68.22	.50	39.5	1.5	47.17	.22	67.4	1.2	38.46	.19	32.9	1.2	28.57	.14	43.1	0.5
Sept. 7.3	7.42	.16	25.2	0.0	67.72	.57	41.0	1.0	46.95	.24	68.6	0.8	38.27	.22	34.1	0.9	28.43	.18	43.6	0.4
17.3	7.26	.18	25.2	0.1	67.15	.61	42.0	0.5	46.71	.26	69.4	0.4	38.05	.23	35.0	0.4	28.25	.19	44.0	0.3
27.3	7.08	.18	25.3	0.1	66.54	.61	42.5	0.1	46.45	.27	69.8	0.1	37.82	.24	35.4	0.0	28.06	.19	44.3	0.3
Oct. 7.2	6.90	.17	25.4	0.3	65.93	.59	42.6	0.5	46.18	.25	69.7	0.6	37.58	.24	35.4	0.4	27.87	.19	44.6	0.1
17.2	6.73	.16	25.7	0.4	65.34	.55	42.1	1.0	45.93	.24	69.1	1.1	37.34	.22	35.0	0.9	27.68	.18	44.7	0.1
27.2	6.57	.12	26.1	0.4	64.79	.48	41.1	1.4	45.69	.21	68.0	1.5	37.12	.20	34.1	1.3	27.50	.15	44.8	0.1
Nov. 6.2	6.45	.10	26.5	0.6	64.31	.37	39.7	1.9	45.48	.18	66.5	1.9	36.92	.16	32.8	1.7	27.35	.11	44.7	0.1
16.1	6.35	.05	27.1	0.7	63.94	.27	37.8	2.2	45.30	.13	64.6	2.3	36.76	.13	31.1	2.1	27.24	.06	44.6	0.2
26.1	6.30	.01	27.8	0.7	63.67	.14	35.6	2.4	45.17	.08	62.3	2.7	36.63	.08	29.0	2.5	27.18	.02	44.4	0.2
Dec. 6.1	6.29	.04	28.5	0.9	63.53	.00	33.2	2.6	45.09	.03	59.6	2.9	36.55	.03	26.5	2.7	27.16	.02	44.2	0.2
16.0	6.33	.08	29.4	0.9	63.53	.14	30.6	2.7	45.06	.02	56.7	3.2	36.52	.02	23.8	2.9	27.18	.07	44.0	0.3
26.0	6.41	.12	30.3	1.0	63.67	.27	27.9	2.7	45.08	.08	53.5	3.2	36.54	.07	20.9	3.0	27.25	.12	43.7	0.2
36.0	6.53		31.3		63.94		25.2		45.16		50.3		36.61		17.9		27.37		43.5	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	50 Draconis.				γ Lyræ.				ζ Aquilæ.				ι Lyræ.				σ Octantis.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination South.	
	h m 18 49		° ′ +75 19		h m 18 55		° ′ +32 33		h m 19 1		° ′ +13 43		h m 19 3		° ′ +35 56		h 19		° ′ −89 14	
	s		″		s		″		s		″		s		″		m s		″	
Jan. 1.0	20.13	.00	31.0	3.6	23.64	.09	43.1	2.9	3.46	.10	29.5	2.1	54.88	.07	75.1	3.1	7 36.5	3.5	39.3	3.4
11.0	20.13	.17	27.4	3.5	23.73	.13	40.2	2.9	3.56	.13	27.4	2.0	54.95	.12	72.0	3.0	7 40.0	6.6	35.9	3.3
21.0	20.30	.32	23.9	3.4	23.86	.17	37.3	2.8	3.69	.17	25.4	2.0	55.07	.16	69.0	2.9	7 46.6	9.4	32.6	3.1
30.9	20.62	.48	20.5	3.1	24.03	.21	34.5	2.5	3.86	.20	23.4	1.8	55.23	.20	66.1	2.6	7 56.0	11.9	29.5	2.9
Feb. 9.9	21.10	.60	17.4	2.7	24.24	.24	32.0	2.1	4.06	.22	21.6	1.5	55.43	.24	63.5	2.3	8 7.9	14.1	26.6	2.5
19.9	21.70	.72	14.7	2.2	24.48	.27	29.9	1.7	4.28	.25	20.1	1.1	55.67	.27	61.2	1.8	8 22.0	15.9	24.1	2.1
Mar. 1.9	22.42	.80	12.5	1.6	24.75	.29	28.2	1.2	4.53	.26	19.0	0.8	55.94	.29	59.4	1.3	8 37.9	17.3	22.0	1.7
11.8	23.22	.86	10.9	1.0	25.04	.30	27.0	0.7	4.79	.27	18.2	0.4	56.23	.31	58.1	0.8	8 55.2	18.3	20.3	1.3
21.8	24.08	.88	9.9	0.3	25.34	.31	26.3	0.1	5.06	.28	17.8	0.1	56.54	.32	57.3	0.2	9 13.5	18.9	19.0	0.8
31.8	24.96	.88	9.6	0.3	25.65	.31	26.2	0.4	5.34	.29	17.9	0.4	56.86	.32	57.1	0.4	9 32.4	19.1	18.2	0.4
Apr. 10.7	25.84	.85	9.9	1.0	25.96	.32	26.6	1.0	5.63	.29	18.3	0.9	57.18	.32	57.5	0.9	9 51.5	18.9	17.8	0.2
20.7	26.69	.80	10.9	1.5	26.28	.30	27.6	1.5	5.92	.28	19.2	1.2	57.50	.32	58.4	1.5	10 10.4	18.3	18.0	0.6
30.7	27.49	.71	12.4	2.1	26.58	.28	29.1	1.9	6.20	.27	20.4	1.6	57.82	.29	59.9	1.9	10 28.7	17.3	18.6	1.1
May 10.7	28.20	.61	14.5	2.5	26.86	.27	31.0	2.3	6.47	.25	22.0	1.8	58.11	.28	61.8	2.2	10 46.0	16.0	19.7	1.6
20.6	28.81	.48	17.0	2.9	27.13	.23	33.3	2.5	6.72	.23	23.8	2.0	58.39	.25	64.0	2.6	11 2.0	14.3	21.3	2.0
30.6	29.29	.36	19.9	3.2	27.36	.20	35.8	2.7	6.95	.21	25.8	2.1	58.64	.21	66.6	2.8	11 16.3	12.2	23.3	2.3
June 9.6	29.65	.21	23.1	3.3	27.56	.17	38.5	2.9	7.16	.17	27.9	2.1	58.85	.17	69.4	3.0	11 28.5	10.0	25.6	2.6
19.6	29.86	.07	26.4	3.3	27.73	.12	41.4	2.8	7.33	.14	30.0	2.1	59.02	.13	72.4	3.0	11 38.5	7.5	28.2	2.9
29.5	29.93	.09	29.7	3.4	27.85	.07	44.2	2.8	7.47	.09	32.1	2.1	59.15	.07	75.4	2.9	11 46.0	4.6	31.1	3.0
July 9.5	29.84	.23	33.1	3.3	27.92	.02	47.0	2.7	7.56	.06	34.2	1.9	59.22	.03	78.3	2.8	11 50.6	1.8	34.1	3.1
19.5	29.61	.37	36.4	3.1	27.94	.02	49.7	2.5	7.62	.01	36.1	1.8	59.25	.02	81.1	2.7	11 52.4	1.1	37.2	3.1
29.4	29.24	.50	39.5	2.8	27.92	.07	52.2	2.3	7.63	.04	37.9	1.6	59.23	.07	83.8	2.4	11 51.3	4.1	40.3	3.0
Aug. 8.4	28.74	.62	42.3	2.5	27.85	.12	54.5	2.0	7.59	.07	39.5	1.3	59.16	.11	86.2	2.2	11 47.2	6.9	43.3	2.8
18.4	28.12	.73	44.8	2.1	27.73	.15	56.5	1.7	7.52	.12	40.8	1.1	59.05	.16	88.4	1.8	11 40.3	9.4	46.1	2.5
28.4	27.39	.81	46.9	1.7	27.58	.19	58.2	1.3	7.40	.14	41.9	0.8	58.89	.20	90.2	1.4	11 30.9	11.7	48.6	2.1
Sept. 7.3	26.58	.88	48.6	1.3	27.39	.21	59.5	0.9	7.26	.17	42.7	0.6	58.69	.22	91.6	1.1	11 19.2	13.6	50.7	1.6
17.3	25.70	.93	49.9	0.8	27.18	.23	60.4	0.5	7.09	.18	43.3	0.3	58.47	.24	92.7	0.6	11 5.6	15.0	52.3	1.0
27.3	24.77	.95	50.7	0.2	26.95	.23	60.9	0.1	6.91	.19	43.6	0.1	58.23	.24	93.3	0.2	10 50.6	15.8	53.3	0.5
Oct. 7.3	23.82	.95	50.9	0.2	26.72	.24	61.0	0.4	6.72	.19	43.5	0.3	57.99	.25	93.5	0.2	10 34.8	16.0	53.8	0.1
17.2	22.87	.92	50.7	0.8	26.48	.22	60.6	0.8	6.53	.17	43.2	0.6	57.74	.24	93.3	0.7	10 18.8	15.4	53.7	0.7
27.2	21.95	.87	49.9	1.4	26.26	.20	59.8	1.2	6.36	.16	42.6	0.9	57.50	.21	92.6	1.2	10 3.4	14.4	53.0	1.4
Nov. 6.2	21.08	.79	48.5	1.9	26.06	.16	58.6	1.6	6.20	.13	41.7	1.2	57.29	.18	91.4	1.6	9 49.0	12.7	51.6	1.9
16.1	20.29	.69	46.6	2.3	25.90	.13	57.0	2.0	6.07	.09	40.5	1.5	57.11	.15	89.8	2.0	9 36.3	10.5	49.7	2.4
26.1	19.60	.57	44.3	2.8	25.77	.09	55.0	2.4	5.98	.05	39.0	1.7	56.96	.10	87.8	2.4	9 25.8	7.8	47.3	2.8
Dec. 6.1	19.03	.43	41.5	3.1	25.68	.04	52.6	2.6	5.93	.01	37.3	1.9	56.86	.06	85.4	2.7	9 18.0	4.9	44.5	3.1
16.1	18.60	.27	38.4	3.4	25.64	.01	50.0	2.9	5.92	.03	35.4	2.0	56.80	.01	82.7	2.9	9 13.1	1.7	41.4	3.2
26.0	18.33	.11	35.0	3.6	25.65	.06	47.1	2.9	5.95	.07	33.4	2.1	56.79	.05	79.8	3.0	9 11.4	1.5	38.2	3.4
36.0	18.22		31.4		25.71		44.2		6.02		31.3		56.84		76.8		9 12.9		34.8	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*d* Sagittarii.				δ Draconis.				θ Lyræ.				τ Draconis.				δ Aquilæ.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	19 12		−19 7		19 12		+67 29		19 13		+37 57		19 17		+73 10		19 20		+ 2 55	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.0	5.95	.11	10.3	0.2	29.04	.02	54.8	3.6	4.31	.06	64.8	3.1	18.17	.08	61.2	3.5	43.61	.09	41.7	1.4
11.0	6.06	.15	10.5	0.1	29.02	.09	51.2	3.6	4.37	.10	61.7	3.1	18.09	.06	57.7	3.5	43.70	.12	40.3	1.5
21.0	6.21	.19	10.6	0.1	29.11	.19	47.6	3.4	4.47	.15	58.6	2.9	18.15	.21	54.2	3.5	43.82	.16	38.8	1.3
30.9	6.40	.21	10.7	0.1	29.30	.29	44.2	3.2	4.62	.20	55.7	2.7	18.36	.34	50.7	3.3	43.98	.18	37.5	1.2
Feb. 9.9	6.61	.24	10.8	0.1	29.59	.39	41.0	2.9	4.82	.23	53.0	2.4	18.70	.47	47.4	2.9	44.16	.21	36.3	1.0
19.9	6.85	.26	10.7	0.1	29.98	.46	38.1	2.4	5.05	.27	50.6	1.9	19.17	.57	44.5	2.4	44.37	.24	35.3	0.8
Mar. 1.9	7.11	.27	10.6	0.2	30.44	.52	35.7	1.9	5.32	.29	48.7	1.4	19.74	.66	42.1	1.9	44.61	.25	34.5	0.5
11.8	7.38	.29	10.4	0.4	30.96	.57	33.8	1.2	5.61	.31	47.3	0.9	20.40	.72	40.2	1.4	44.86	.26	34.0	0.1
21.8	7.67	.30	10.0	0.5	31.53	.59	32.6	0.5	5.92	.32	46.4	0.3	21.12	.77	38.8	0.6	45.12	.28	33.9	0.2
31.8	7.97	.31	9.5	0.5	32 12	.61	32.1	0.1	6.24	.33	46.1	0.3	21.89	.78	38.2	0.0	45.40	.28	34.1	0.5
Apr. 10.8	8.28	.31	9.0	0.7	32.73	.60	32.2	0.7	6.57	.33	46.4	0.9	22.67	.77	38.2	0.6	45.68	.29	34.6	0.9
20.7	8.59	.30	8.3	0.7	33.33	.57	32.9	1.3	6.90	.32	47.3	1.4	23.44	.73	38.8	1.2	45.97	.28	35.5	1.1
30.7	8.89	.30	7.6	0.7	33.90	.53	34.2	1.9	7.22	.31	48.7	1.9	24.17	.68	40.0	1.8	46.25	.28	36.6	1.3
May 10.7	9.19	.28	6.9	0.8	34.43	.47	36.1	2.4	7.53	.29	50.6	2.2	24.85	.61	41.8	2.3	46.53	.27	37.9	1.5
20.6	9.47	.27	6.1	0.7	34.90	.41	38.5	2.8	7.82	.26	52.8	2.6	25.46	.51	44.1	2.7	46.80	.25	39.4	1.6
30.6	9.74	.24	5.4	0.6	35.31	.32	41.3	3.1	8.08	.22	55.4	2.8	25.97	.40	46.8	3.1	47.05	.22	41.0	1.7
June 9.6	9.98	.21	4.8	0.5	35.63	.23	44.4	3.3	8.30	.18	58.2	3.0	26.37	.29	49.9	3.2	47.27	.20	42.7	1.7
19.6	10.19	.18	4.3	0.4	35.86	.14	47.7	3.4	8.48	.14	61.2	3.1	26.66	.16	53.1	3.4	47.47	.16	44.4	1.6
29.5	10.37	.13	3.9	0.3	36.00	.04	51.1	3.5	8.62	.08	64.3	3.0	26.82	.02	56.5	3.5	47.63	.12	46.0	1.6
July 9.5	10.50	.09	3.6	0.2	36.04	.06	54.6	3.4	8.70	.04	67.3	2.9	26.84	.10	60.0	3.4	47.75	.08	47.6	1.4
19.5	10.59	.04	3.4	0.0	35.98	.16	58.0	3.2	8.74	.02	70.2	2.8	26.74	.23	63.4	3.2	47.83	.04	49.0	1.3
29.5	10.63	.01	3.4	0.0	35.82	.25	61.2	3.0	8.72	.06	73.0	2.5	26.51	.35	66.6	3.1	47.87	.01	50.3	1.1
Aug. 8.4	10.62	.05	3.4	0.2	35.57	.34	64.2	2.8	8.66	.12	75.5	2.3	26.16	.46	69.7	2.8	47.86	.05	51.4	1.0
18.4	10.57	.09	3.6	0.2	35.23	.42	67.0	2.4	8.54	.15	77.8	1.9	25.70	.57	72.5	2.5	47.81	.08	52.4	0.7
28.4	10.48	.13	3.8	0.3	34.81	.48	69.4	2.0	8.39	.20	79.7	1.6	25.13	.65	75.0	2.1	47.73	.13	53.1	0.6
Sept. 7.3	10.35	.15	4.1	0.3	34.33	.54	71.4	1.6	8.19	.22	81.3	1.2	24.48	.72	77.1	1.7	47.60	.14	53.7	0.3
17.3	10.20	.17	4.4	0.3	33.79	.57	73.0	1.1	7.97	.24	82.5	0.8	23.76	.78	78.8	1.2	47.46	.17	54.0	0.2
27.3	10.03	.18	4.7	0.3	33.22	.60	74.1	0.6	7.73	.26	83.3	0.3	22.98	.81	80.0	0.7	47.29	.18	54.2	0.1
Oct. 7.3	9.85	.18	5.0	0.3	32.62	.61	74.7	0.0	7.47	.26	83.6	0.2	22.17	.82	80.7	0.2	47.11	.17	54.1	0.3
17.2	9.67	.17	5.3	0.3	32.01	.59	74.7	0.5	7.21	.24	83.4	0.6	21.35	.82	80.9	0.4	46.94	.17	53.8	0.4
27.2	9.50	.15	5.6	0.2	31.42	.56	74.2	1.1	6.97	.23	82.8	1.1	20.53	.77	80.5	1.0	46.77	.15	53.4	0.7
Nov. 6.2	9.35	.12	5.8	0.2	30.86	.52	73.1	1.6	6.74	.20	81.7	1.5	19.76	.73	79.5	1.5	46.62	.12	52.7	0.8
16.2	9.23	.09	6.0	0.2	30.34	.46	71.5	2.1	6.54	.16	80.2	2.0	19.03	.64	78.0	2.0	46.50	.09	51.9	1.0
26.1	9.14	.04	6.2	0.2	29.88	.38	69.4	2.6	6.38	.11	78.2	2.3	18.39	.55	76.0	2.4	46.41	.06	50.9	1.2
Dec. 6.1	9.10	.00	6.4	0.1	29.50	.29	66.8	2.9	6.27	.07	75.9	2.7	17.84	.44	73.6	2.9	46.35	.01	49.7	1.3
16.1	9.10	.05	6.5	0.2	29.21	.19	63.9	3.3	6.20	.03	73.2	2.9	17.40	.31	70.7	3.3	46.34	.02	48.4	1.4
26.0	9.15	.09	6.7	0.2	29.02	.09	60.6	3.5	6.17	.03	70.3	3.1	17.09	.18	67.4	3.4	46.36	.07	47.0	1.5
36.0	9.24		6.9		28.93		57.1		6.20		67.2		16.91		64.0		46.43		45.5	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Cygni.				κ Aquilæ.				β Sagittæ.				γ Aquilæ.				δ Cygni.			
	Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	19 26		+27 45		19 31		− 7 13		19 36		+17 15		19 41		+10 22		19 42		+44 53	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.0	53.94	.05	49.3	2.7	48.12	.08	68.7	0.9	47.76	.06	34.1	2.2	45.59	.06	66.5	1.8	0.27	.01	72.0	3.2
11.0	53.99	.10	46.6	2.7	48.20	.12	69.6	0.8	47.82	.09	31.9	2.2	45.65	.09	64.7	1.8	0.28	.06	68.8	3.2
21.0	54.09	.14	43.9	2.6	48.32	.15	70.4	0.8	47.91	.13	29.7	2.1	45.74	.13	62.9	1.7	0.34	.12	65.6	3.2
31.0	54.23	.17	41.3	2.4	48.47	.18	71.2	0.6	48.04	.17	27.6	1.9	45.87	.16	61.2	1.6	0.46	.17	62.4	2.9
Feb. 9.9	54.40	.21	38.9	2.0	48.65	.21	71.8	0.4	48.21	.19	25.7	1.6	46.03	.19	59.6	1.3	0.63	.21	59.5	2.7
19.9	54.61	.23	36.9	1.7	48.86	.23	72.2	0.3	48.40	.22	24.1	1.3	46.22	.22	58.3	1.1	0.84	.25	56.8	2.3
Mar. 1.9	54.84	.26	35.2	1.3	49.09	.25	72.5	0.1	48.62	.25	22.8	1.0	46.44	.24	57.2	0.7	1.09	.29	54.5	1.7
11.9	55.10	.28	33.9	0.7	49.34	.26	72.6	0.1	48.87	.26	21.8	0.5	46.68	.25	56.5	0.3	1.38	.32	52.8	1.2
21.8	55.38	.30	33.2	0.2	49.60	.28	72.5	0.4	49.13	.27	21.3	0.1	46.93	.27	56.2	0.0	1.70	.34	51.6	0.7
31.8	55.68	.30	33.0	0.3	49.88	.29	72.1	0.6	49.40	.29	21.2	0.4	47.20	.28	56.2	0.5	2.04	.36	50.9	0.0
Apr. 10.8	55.98	.31	33.3	0.8	50.17	.29	71.5	0.8	49.69	.29	21.6	0.8	47.48	.29	56.7	0.8	2.40	.36	50.9	0.6
20.7	56.29	.30	34.1	1.2	50.46	.29	70.7	1.0	49.98	.29	22.4	1.2	47.77	.29	57.5	1.1	2.76	.36	51.5	1.2
30.7	56.59	.29	35.3	1.7	50.75	.29	69.7	1.2	50.27	.29	23.6	1.5	48.06	.29	58.6	1.5	3.12	.34	52.7	1.7
May 10.7	56.88	.28	37.0	2.1	51.04	.28	68.5	1.2	50.56	.28	25.1	1.8	48.35	.27	60.1	1.7	3.46	.33	54.4	2.1
20.7	57.16	.26	39.1	2.3	51.32	.26	67.3	1.2	50.84	.25	26.9	2.1	48.62	.26	61.8	1.9	3.79	.30	56.5	2.5
30.6	57.42	.23	41.4	2.6	51.58	.24	66.1	1.3	51.09	.23	29.0	2.2	48.88	.23	63.7	2.0	4.09	.26	59.0	2.9
June 9.6	57.65	.19	44.0	2.7	51.82	.21	64.8	1.3	51.32	.21	31.2	2.4	49.11	.21	65.7	2.0	4.35	.22	61.9	3.1
19.6	57.84	.15	46.7	2.7	52.03	.18	63.5	1.1	51.53	.16	33.6	2.3	49.32	.17	67.7	2.1	4.57	.17	65.0	3.2
29.6	57.99	.11	49.4	2.7	52.21	.14	62.4	1.1	51.69	.13	35.9	2.3	49.49	.14	69.8	2.0	4.74	.12	68.2	3.2
July 9.5	58.10	.07	52.1	2.6	52.35	.10	61.3	0.9	51.82	.08	38.2	2.2	49.63	.10	71.8	1.9	4.86	.06	71.4	3.2
19.5	58.17	.01	54.7	2.5	52.45	.05	60.4	0.7	51.90	.04	40.4	2.1	49.73	.05	73.7	1.7	4.92	.01	74.6	3.1
29.5	58.18	.03	57.2	2.3	52.50	.01	59.7	0.6	51.94	.00	42.5	1.9	49.78	.00	75.4	1.6	4.93	.05	77.7	2.9
Aug. 8.4	58.15	.07	59.5	2.0	52.51	.03	59.1	0.5	51.94	.05	44.4	1.6	49.78	.04	77.0	1.3	4.88	.11	80.6	2.7
18.4	58.08	.12	61.5	1.8	52.48	.08	58.6	0.3	51.89	.09	46.0	1.4	49.74	.07	78.3	1.2	4.77	.16	83.3	2.4
28.4	57.96	.15	63.3	1.4	52.40	.11	58.3	0.2	51.80	.13	47.4	1.2	49.67	.12	79.5	0.9	4.61	.19	85.7	2.0
Sept. 7.4	57.81	.18	64.7	1.1	52.29	.14	58.1	0.0	51.67	.15	48.6	0.8	49.55	.14	80.4	0.6	4.42	.24	87.7	1.6
17.3	57.63	.21	65.8	0.7	52.15	.16	58.1	0.1	51.52	.18	49.4	0.5	49.41	.16	81.0	0.4	4.18	.27	89.3	1.2
27.3	57.42	.21	66.5	0.3	51.99	.17	58.2	0.2	51.34	.19	49.9	0.2	49.25	.18	81.4	0.1	3.91	.28	90.5	0.7
Oct. 7.3	57.21	.22	66.8	0.1	51.82	.17	58.4	0.3	51.15	.19	50.1	0.1	49.07	.18	81.5	0.2	3.63	.29	91.2	0.2
17.3	56.99	.21	66.7	0.5	51.65	.17	58.7	0.4	50.96	.18	50.0	0.4	48.89	.18	81.3	0.4	3.34	.28	91.4	0.2
27.2	56.78	.19	66.2	0.9	51.48	.15	59.1	0.5	50.78	.18	49.6	0.8	48.71	.16	80.9	0.6	3.06	.27	91.2	0.8
Nov. 6.2	56.59	.17	65.3	1.3	51.33	.12	59.6	0.5	50.60	.14	48.8	1.0	48.55	.14	80.3	1.0	2.79	.25	90.4	1.3
16.2	56.42	.13	64.0	1.7	51.21	.10	60.1	0.7	50.46	.12	47.8	1.4	48.41	.11	79.3	1.1	2.54	.21	89.1	1.7
26.1	56.29	.10	62.3	1.9	51.11	.05	60.8	0.7	50.34	.09	46.4	1.6	48.30	.08	78.2	1.4	2.33	.18	87.4	2.2
Dec. 6.1	56.19	.06	60.4	2.3	51.06	.02	61.5	0.8	50.25	.04	44.8	1.9	48.22	.04	76.8	1.6	2.15	.12	85.2	2.5
16.1	56.13	.01	58.1	2.5	51.04	.02	62.3	0.8	50.21	.01	42.9	2.0	48.18	.00	75.2	1.7	2.03	.08	82.7	2.9
26.1	56.12	.03	55.6	2.7	51.06	.06	63.1	0.9	50.20	.04	40.9	2.2	48.18	.04	73.5	1.8	1.95	.02	79.8	3.1
36.0	56.15		52.9		51.12		64.0		50.24		38.7		48.22		71.7		1.93		76.7	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Aquilæ. (*Altair.*)				ε Draconis.				ε Pavonis.				β Aquilæ.				γ Sagittæ.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 19 46		° ′ + 8 37		h m 19 48		° ′ +70 1		h m 19 49		° ′ −73 9		h m 19 50		° ′ + 6 10		h m 19 54		° ′ +19 14	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.1	9.97	.05	15.4	1.7	26.70	.13	53.1	3.4	37.12	.11	33.7	2.9	39.90	.05	22.1	1.6	32.79	.03	17.1	2.2
11.0	10.02	.10	13.7	1.7	26.57	.02	49.7	3.5	37.23	.24	30.8	3.0	39.95	.09	20.5	1.5	32.82	.08	14.9	2.2
21.0	10.12	.12	12.0	1.6	26.55	.10	46.2	3.5	37.47	.36	27.8	2.9	40.04	.12	19.0	1.5	32.90	.11	12.7	2.2
31.0	10.24	.16	10.4	1.5	26.65	.22	42.7	3.4	37.83	.49	24.9	2.8	40.16	.16	17.5	1.3	33.01	.15	10.5	2.0
Feb. 9.9	10.40	.19	8.9	1.2	26.87	.33	39.3	3.1	38.32	.59	22.1	2.7	40.32	.18	16.2	1.2	33.16	.18	8.5	1.7
19.9	10.59	.21	7.7	1.0	27.20	.43	36.2	2.7	38.91	.68	19.4	2.4	40.50	.21	15.0	0.9	33.34	.20	6.8	1.4
Mar. 1.9	10.80	.24	6.7	0.6	27.63	.52	33.5	2.2	39.59	.76	17.0	2.1	40.71	.24	14.1	0.5	33.54	.24	5.4	1.1
11.9	11.04	.25	6.1	0.3	28.15	.58	31.3	1.7	40.35	.82	14.9	1.7	40.95	.25	13.6	0.3	33.78	.25	4.3	0.6
21.8	11.29	.27	5.8	0.1	28.73	.63	29.6	1.0	41.17	.87	13.2	1.5	41.20	.26	13.3	0.2	34.03	.27	3.7	0.2
31.8	11.56	.28	5.9	0.5	29.36	.66	28.6	0.4	42.04	.90	11.7	1.0	41.46	.28	13.5	0.4	34.30	.29	3.5	0.3
Apr. 10.8	11.84	.29	6.4	0.8	30.02	.68	28.2	0.2	42.94	.91	10.7	0.7	41.74	.29	13.9	0.9	34.59	.29	3.8	0.7
20.8	12.13	.29	7.2	1.1	30.70	.65	28.4	0.9	43.85	.91	10.0	0.2	42.03	.29	14.8	1.1	34.88	.30	4.5	1.1
30.7	12.42	.29	8.3	1.5	31.35	.63	29.3	1.5	44.76	.89	9.8	0.2	42.32	.28	15.9	1.3	35.18	.29	5.6	1.6
May 10.7	12.71	.28	9.8	1.6	31.98	.58	30.8	2.0	45.65	.86	10.0	0.6	42.60	.28	17.2	1.6	35.47	.28	7.2	1.8
20.7	12.99	.26	11.4	1.9	32.56	.51	32.8	2.5	46.51	.80	10.6	1.1	42.88	.27	18.8	1.8	35.75	.27	9.0	2.1
30.6	13.25	.24	13.3	1.9	33.07	.43	35.3	2.9	47.31	.73	11.7	1.4	43.15	.24	20.6	1.8	36.02	.25	11.1	2.3
June 9.6	13.49	.21	15.2	2.0	33.50	.34	38.2	3.2	48.04	.64	13.1	1.8	43.39	.22	22.4	1.9	36.27	.21	13.4	2.4
19.6	13.70	.18	17.2	2.0	33.84	.23	41.4	3.3	48.68	.54	14.9	2.1	43.61	.18	24.3	1.9	36.48	.18	15.8	2.4
29.6	13.88	.15	19.2	2.0	34.07	.13	44.7	3.5	49.22	.41	17.0	2.3	43.79	.15	26.2	1.8	36.66	.15	18.2	2.4
July 9.5	14.03	.10	21.2	1.8	34.20	.01	48.2	3.5	49.63	.29	19.3	2.5	43.94	.10	28.0	1.7	36.81	.10	20.6	2.4
19.5	14.13	.05	23.0	1.7	34.21	.09	51.7	3.4	49.92	.14	21.8	2.7	44.04	.06	29.7	1.5	36.91	.05	23.0	2.2
29.5	14.18	.01	24.7	1.5	34.12	.20	55.1	3.3	50.06	.00	24.5	2.7	44.10	.02	31.2	1.4	36.96	.01	25.2	2.1
Aug. 8.5	14.19	.03	26.2	1.3	33.92	.31	58.4	3.1	50.06	14	27.2	2.6	44.12	.03	32.6	1.2	36.97	.04	27.3	1.8
18.4	14.16	.07	27.5	1.1	33.61	.40	61.5	2.8	49.92	.27	29.8	2.4	44.09	.06	33.8	0.9	36.93	.07	29.1	1.5
28.4	14.09	.11	28.6	0.8	33.21	.48	64.3	2.5	49.65	.39	32.2	2.2	44.03	.11	34.7	0.8	36.86	.12	30.6	1.3
Sept. 7.4	13.98	.13	29.4	0.6	32.73	.55	66.8	2.1	49.26	.50	34.4	1.9	43.92	.13	35.5	0.5	36.74	.14	31.9	1.0
17.3	13.85	.16	30.0	0.4	32.18	.61	68.9	1.6	48.76	.58	36.3	1.5	43.79	.16	36.0	0.2	36.60	.18	32.9	0.7
27.3	13.69	.18	30.4	0.1	31.57	.65	70.5	1.1	48.18	.64	37.8	1.0	43.63	.17	36.2	0.1	36.42	.18	33.6	0.4
Oct. 7.3	13.51	.17	30.5	0.2	30.92	.67	71.6	0.7	47.54	.66	38.8	0.6	43.46	.17	36.3	0.2	36.24	.19	34.0	0.0
17.3	13.34	.18	30.3	0.4	30.25	.67	72.3	0.0	46.88	.67	39.4	0.1	43.29	.17	36.1	0.4	36.05	.19	34.0	0.3
27.2	13.16	.16	29.9	0.6	29.58	.66	72.3	0.5	46.21	.63	39.3	0.5	43.12	.16	35.7	0.6	35.86	.18	33.7	0.7
Nov. 6.2	13.00	.13	29.3	0.9	28.92	.63	71.8	1.0	45.58	.56	38.8	1.1	42.96	.14	35.1	0.9	35.68	.15	33.0	1.0
16.2	12.87	.11	28.4	1.0	28.29	.57	70.8	1.6	45.02	.48	37.7	1.6	42.82	.11	34.2	1.0	35.53	.13	32.0	1.3
26.2	12.76	.08	27.4	1.4	27.72	.50	69.2	2.1	44.54	.38	36.1	2.0	42.71	.08	33.2	1.2	35.40	.10	30.7	1.5
Dec. 6.1	12.68	.04	26.0	1.4	27.22	.42	67.1	2.6	44.16	.24	34.1	2.4	42.63	.04	32.0	1.4	35.30	.07	29.2	1.8
16.1	12.64	.00	24.6	1.6	26.80	.32	64.5	3.0	43.92	.12	31.7	2.6	42.59	.00	30.6	1.5	35.23	.02	27.4	2.1
26.1	12.64	.03	23.0	1.7	26.48	.21	61.5	3.3	43.80	.03	29.1	2.8	42.59	.03	29.1	1.5	35.21	.02	25.3	2.1
36.0	12.67		21.3		26.27		58.2		43.83		26.3		42.62		27.6		35.23		23.2	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ε Sagittarii.				τ Aquilæ.				θ Aquilæ.				31 Cygni.				κ Cephei (pr.).			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	19 56		−27 58		19 59		+ 7 0		20 6		− 1 5		20 10		+46 27		20 11		+77 25	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.1	50.46	.07	17.3	0.5	31.06	.04	49.2	1.6	25.43	.05	59.3	1.1	38.45	.03	30.8	3.1	60.03	0.37	54.9	3.2
11.0	50.53	.11	16.8	0.6	31.10	.08	47.6	1.5	25.48	.08	60.4	1.1	38.42	.02	27.7	3.2	59.66	0.19	51.7	3.4
21.0	50.64	.15	16.2	0.6	31.18	.12	46.1	1.5	25.56	.11	61.5	1.0	38.44	.07	24.5	3.1	59.47	0.00	48.3	3.4
31.0	50.79	.18	15.6	0.7	31.30	.14	44.6	1.4	25.67	.14	62.5	0.9	38.51	.13	21.4	3.1	59.47	0.19	44.9	3.5
Feb. 10.0	50.97	.21	14.9	0.7	31.44	.18	43.2	1.1	25.81	.18	63.4	0.7	38.64	.18	18.3	2.8	59.66	0.38	41.4	3.2
19.9	51.18	.24	14.2	0.8	31.62	.20	42.1	0.9	25.99	.20	64.1	0.5	38.82	.23	15.5	2.4	60.04	0.55	38.2	2.9
Mar. 1.9	51.42	.27	13.4	0.9	31.82	.23	41.2	0.6	26.19	.22	64.6	0.2	39.05	.26	13.1	2.0	60.59	0.69	35.3	2.5
11.9	51.69	.28	12.5	0.9	32.05	.24	40.6	0.2	26.41	.24	64.8	0.0	39.31	.31	11.1	1.5	61.28	0.83	32.8	1.9
21.8	51.97	.31	11.6	0.9	32.29	.26	40.4	0.1	26.65	.26	64.8	0.3	39.62	.33	9.6	0.9	62.11	0.92	30.9	1.4
31.8	52.28	.32	10.7	1.0	32.55	.28	40.5	0.4	26.91	.28	64.5	0.6	39.95	.35	8.7	0.3	63.03	0.98	29.5	0.8
Apr. 10.8	52.60	.32	9.7	0.9	32.83	.29	40.9	0.9	27.19	.28	63.9	0.9	40.30	.37	8.4	0.3	64.01	1.01	28.7	0.1
20.8	52.92	.34	8.8	0.9	33.12	.29	41.8	1.1	27.47	.30	63.0	1.1	40.67	.37	8.7	0.9	65.02	1.01	28.6	0.5
30.7	53.26	.33	7.9	0.9	33.41	.29	42.9	1.4	27.77	.29	61.9	1.4	41.04	.37	9.6	1.5	66.03	0.96	29.1	1.1
May 10.7	53.59	.32	7.0	0.7	33.70	.28	44.3	1.6	28.06	.29	60.5	1.4	41.41	.35	11.1	1.9	66.99	0.91	30.2	1.7
20.7	53.91	.31	6.3	0.7	33.98	.27	45.9	1.8	28.35	.27	59.1	1.6	41.76	.33	13.0	2.4	67.90	0.80	31.9	2.2
30.7	54.22	.29	5.6	0.5	34.25	.25	47.7	1.9	28.62	.26	57.5	1.6	42.09	.29	15.4	2.7	68.70	0.69	34.1	2.6
June 9.6	54.51	.26	5.1	0.3	34.50	.22	49.6	2.0	28.88	.23	55.9	1.7	42.38	.26	18.1	3.0	69.39	0.55	36.7	2.9
19 6	54.77	.23	4.8	0.1	34.72	.19	51.6	1.9	29.11	.20	54.2	1.5	42.64	.21	21.1	3.2	69.94	0.40	39.6	3.2
29.6	55.00	.18	4.7	0.1	34.91	.15	53.5	1.9	29.31	.17	52.7	1.5	42.85	.15	24.3	3.2	70.34	0.23	42.8	3.4
July 9.5	55.18	.14	4.8	0.2	35.06	.12	55.4	1.7	29.48	.12	51.2	1.4	43.00	.10	27.5	3.3	70.57	0.07	46.2	3.5
19.5	55.32	.10	5.0	0.4	35.18	.07	57.1	1.7	29.60	.08	49.8	1.2	43.10	.04	30.8	3.3	70.64	0.10	49.7	3.5
29.5	55.42	.04	5.4	0.5	35.25	.02	58.8	1.4	29.68	.04	48.6	1.0	43.14	.02	34.1	3.1	70.54	0.27	53.2	3.4
Aug. 8.5	55.46	.02	5.9	0.6	35.27	.02	60.2	1.3	29.72	.01	47.6	0.9	43.12	.07	37.2	2.9	70.27	0.43	56.6	3.3
18.4	55.44	.05	6.5	0.8	35.25	.06	61.5	1.0	29.71	.05	46.7	0.6	43.05	.13	40.1	2.6	69.84	0.58	59.9	3.0
28.4	55.39	.10	7.3	0.7	35.19	.10	62.5	0.8	29.66	.08	46.1	0.5	42.92	.18	42.7	2.3	69.26	0.71	62.9	2.8
Sept. 7.4	55.29	.14	8.0	0.7	35.09	.13	63.3	0.6	29.58	.12	45.6	0.2	42.74	.22	45.0	1.9	68.55	0.83	65.7	2.4
17.4	55.15	.16	8.7	0.7	34.96	.15	63.9	0.3	29.46	.15	45.4	0.1	42.52	.25	46.9	1.5	67.72	0.93	68.1	2.0
27.3	54.99	.18	9.4	0.7	34.81	.17	64.2	0.1	29.31	.16	45.3	0.0	42.27	.28	48.4	1.1	66.79	1.01	70.1	1.6
Oct. 7.3	54.81	.19	10.1	0.5	34.64	.17	64.3	0.1	29.15	.17	45.3	0.2	41.99	.29	49.5	0.6	65.78	1.06	71.7	1.1
17.3	54.62	.19	10.6	0.4	34.47	.17	64.2	0.4	28.98	.16	45.5	0.4	41.70	.29	50.1	0.1	64 72	1.08	72.8	0.5
27.2	54.43	.17	11.0	0.2	34.30	.16	63.8	0.5	28.82	.16	45.9	0.6	41.41	.28	50.2	0.4	63.64	1.08	73.3	0.0
Nov. 6.2	54.26	.15	11.2	0.1	34.14	.14	63.3	0.8	28.66	.14	46.5	0.6	41.13	.26	49.8	0.9	62.56	1.05	73.3	0.6
16.2	54.11	.12	11.3	0.0	34.00	.12	62.5	1.0	28.52	.11	47.1	0.8	40.87	.24	48.9	1.4	61.51	0.99	72.7	1.2
26.2	53.99	.08	11.3	0.2	33.88	.08	61.5	1.2	28.41	.08	47.9	0.9	40.63	.21	47.5	1.9	60.52	0.91	71.5	1.7
Dec. 6.1	53.91	.04	11.1	0.2	33.80	.05	60.3	1.4	28.33	.05	48.8	1.0	40.42	.16	45.6	2.3	59.61	0.78	69.8	2.2
16.1	53.87	.00	10.9	0.4	33.75	.01	58.9	1.5	28.28	.01	49.8	1.1	40.26	.11	43.3	2.7	58.83	0.65	67.6	2.7
26.1	53.87	.05	10.5	0.4	33.74	.02	57.4	1.5	28.27	.03	50.9	1.1	40.15	.07	40.6	2.9	58.18	0.49	64.9	3.0
36.1	53.92		10.1		33.76		55.9		28.30		52.0		40.08		37.7		57.69		61.9	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*α*² Capricorni.				*α* Pavonis.				*γ* Cygni.				*π* Capricorni.				*ε* Delphini.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	20 12		−12 49		20 18		−57 1		20 18		+39 57		20 21		−18 30		20 28		+10 58	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.1	48.40	.05	70.4	0.4	9.23	.04	76.0	2.2	49.48	.02	28.4	2.9	54.43	.04	72.6	0.0	41.61	.01	64.5	1.7
11.0	48.45	.08	70.8	0.4	9.27	.11	73.8	2.3	49.46	.03	25.5	2.9	54.47	.08	72.6	0.0	41.62	.05	62.8	1.7
21.0	48.53	.11	71.2	0.3	9.38	.17	71.5	2.3	49.49	.07	22.6	3.0	54.55	.11	72.6	0.1	41.67	.09	61.1	1.7
31.0	48.64	.15	71.5	0.1	9.55	.24	69.2	2.3	49.56	.11	19.6	2.9	54.66	.14	72.5	0.2	41.76	.11	59.4	1.5
Feb. 10.0	48.79	.18	71.6	0.1	9.79	.29	66.9	2.3	49.67	.17	16.7	2.6	54.80	.18	72.3	0.3	41.87	.15	57.9	1.3
19.9	48.97	.20	71.7	0.2	10.08	.34	64.6	2.2	49.84	.20	14.1	2.2	54.98	.20	72.0	0.5	42.02	.17	56.6	1.1
Mar. 1.9	49.17	.23	71.5	0.3	10.42	.39	62.4	2.1	50.04	.24	11.9	1.9	55.18	.22	71.5	0.6	42.19	.20	55.5	0.7
11.9	49.40	.25	71.2	0.4	10.81	.42	60.3	1.9	50.28	.27	10.0	1.4	55.40	.25	70.9	0.7	42.39	.23	54.8	0.4
21.9	49.65	.27	70.8	0.7	11.23	.46	58.4	1.7	50.55	.30	8.6	0.8	55.65	.27	70.2	0.9	42.62	.25	54.4	0.1
31.8	49.92	.28	70.1	0.9	11.69	.48	56.7	1.4	50.85	.33	7.8	0.2	55.92	.29	69.3	1.0	42.87	.27	54.3	0.4
Apr. 10.8	50.20	.30	69.2	1.0	12.17	.50	55.3	1.2	51.18	.33	7.6	0.3	56.21	.31	68.3	1.1	43.14	.28	54.7	0.7
20.8	50.50	.30	68.2	1.1	12.67	.51	54.1	0.8	51.51	.35	7.9	0.9	56.52	.31	67.2	1.1	43.42	.29	55.4	1.1
30.7	50.80	.30	67.1	1.2	13.18	.51	53.3	0.6	51.86	.34	8.8	1.4	56.83	.31	66.1	1.2	43.71	.30	56.5	1.4
May 10.7	51.10	.30	65.9	1.2	13.69	.50	52.7	0.1	52.20	.33	10.2	1.9	57.14	.31	64.9	1.2	44.01	.29	57.9	1.7
20.7	51.40	.29	64.7	1.3	14.19	.49	52.6	0.1	52.53	.31	12.1	2.3	57.45	.30	63.7	1.1	44.30	.29	59.6	1.9
30.7	51.69	.27	63.4	1.2	14.68	.45	52.7	0.6	52.84	.29	14.4	2.6	57.75	.29	62.6	1.0	44.59	.26	61.5	2.0
June 9.6	51.96	.25	62.2	1.1	15.13	.41	53.3	0.8	53.13	.25	17.0	2.9	58.04	.26	61.6	0.9	44.85	.24	63.5	2.1
19.6	52.21	.22	61.1	1.0	15.54	.36	54.1	1.2	53.38	.21	19.9	3.0	58.30	.23	60.7	0.8	45.09	.22	65.6	2.2
29.6	52.43	.18	60.1	0.9	15.90	.30	55.3	1.5	53.59	.16	22.9	3.2	58.53	.20	59.9	0.6	45.31	.17	67.8	2.1
July 9.6	52.61	.14	59.2	0.7	16.20	.23	56.8	1.7	53.75	.12	26.1	3.1	58.73	.15	59.3	0.4	45.48	.14	69.9	2.0
19.5	52.75	.09	58.5	0.5	16.43	.16	58.5	1.9	53.87	.06	29.2	3.0	58.88	.11	58.9	0.2	45.62	.09	71.9	1.9
29.5	52.84	.05	58.0	0.4	16.59	.08	60.4	2.1	53.93	.00	32.2	3.0	58.99	.06	58.7	0.1	45.71	.05	73.8	1.8
Aug. 8.5	52.89	.01	57.6	0.2	16.67	.00	62.5	2.1	53.93	.05	35.2	2.8	59.05	.01	58.6	0.1	45.76	.01	75.6	1.5
18.4	52.90	.04	57.4	0.0	16.67	.08	64.6	2.0	53.88	.09	38.0	2.5	59.06	.03	58.7	0.3	45.77	.04	77.1	1.3
28.4	52.86	.08	57.4	0.1	16.59	.16	66.6	2.0	53.79	.15	40.5	2.1	59.03	.07	59.0	0.3	45.73	.08	78.4	1.1
Sept. 7.4	52.78	.12	57.5	0.1	16.43	.21	68.6	1.8	53.64	.18	42.6	1.9	58.96	.11	59.3	0.5	45.65	.11	79.5	0.8
17.4	52.66	.14	57.6	0.3	16.22	.26	70.4	1.6	53.46	.21	44.5	1.4	58.85	.14	59.8	0.5	45.54	.14	80.3	0.6
27.3	52.52	.16	57.9	0.4	15.96	.30	72.0	1.2	53.25	.23	45.9	1.0	58.71	.16	60.3	0.5	45.40	.16	80.9	0.3
Oct. 7.3	52.36	.17	58.3	0.4	15.66	.32	73.2	0.9	53.02	.25	46.9	0.6	58.55	.17	60.8	0.5	45.24	.17	81.2	0.1
17.3	52.19	.17	58.7	0.4	15.34	.33	74.1	0.4	52.77	.25	47.5	0.1	58.38	.17	61.3	0.5	45.07	.17	81.3	0.2
27.3	52.02	.15	59.1	0.5	15.01	.32	74.5	0.1	52.52	.25	47.6	0.3	58.21	.16	61.8	0.5	44.90	.17	81.1	0.5
Nov. 6.2	51.87	.14	59.6	0.5	14.69	.29	74.6	0.4	52.27	.23	47.3	0.9	58.05	.15	62.3	0.4	44.73	.15	80.6	0.7
16.2	51.73	.12	60.1	0.5	14.40	.24	74.2	0.9	52.04	.20	46.4	1.3	57.90	.12	62.7	0.3	44.58	.13	79.9	1.0
26.2	51.61	.08	60.6	0.4	14.16	.20	73.3	1.1	51.84	.18	45.1	1.8	57.78	.09	63.0	0.3	44.45	.10	78.9	1.2
Dec. 6.1	51.53	.05	61.0	0.5	13.96	.13	72.2	1.6	51.66	.14	43.3	2.1	57.69	.05	63.3	0.2	44.35	.07	77.7	1.4
16.1	51.48	.01	61.5	0.5	13.83	.07	70.6	1.8	51.52	.09	41.2	2.5	57.64	.02	63.5	0.2	44.28	.04	76.3	1.5
26.1	51.47	.03	62.0	0.4	13.76	.01	68.8	2.1	51.43	.05	38.7	2.7	57.62	.02	63.7	0.1	44.24	.01	74.8	1.7
36.1	51.50		62.4		13.77		66.7		51.38		36.0		57.64		63.8		44.23		73.1	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	Groombridge 3241.				α Delphini.				β Pavonis.				α Cygni.				ψ Capricorni.			
	Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination South.		Right Ascension.		Declination North.		Right Ascension.		Declination South.	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	20 30		+72 12		20 35		+15 34		20 36		−66 32		20 38		+44 56		20 40		−25 36	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.1	22.24	.29	60.1	3.1	14.64	.00	53.9	1.9	24.93	.02	35.5	2.6	11.89	.06	48.6	2.9	29.75	.02	34.2	0.3
11.1	21.95	.15	57.0	3.3	14.64	.04	52.0	1.9	24.91	.08	32.9	2.7	11.83	.01	45.7	3.0	29.77	.06	33.9	0.5
21.0	21.80	.03	53.7	3.5	14.68	.07	50.1	1.8	24.99	.17	30.2	2.8	11.82	.04	42.7	3.1	29.83	.10	33.4	0.6
31.0	21.77	.10	50.2	3.4	14.75	.11	48.3	1.8	25.16	.25	27.4	2.9	11.86	.09	39.6	3.0	29.93	.13	32.8	0.7
Feb. 10.0	21.87	.24	46.8	3.3	14.86	.14	46.5	1.6	25.41	.34	24.5	2.8	11.95	.14	36.6	2.8	30.06	.16	32.1	0.9
19.9	22.11	.36	43.5	3.0	15.00	.17	44.9	1.3	25.75	.41	21.7	2.7	12.09	.19	33.8	2.5	30.22	.20	31.2	0.9
Mar. 1.9	22.47	.46	40.5	2.6	15.17	.20	43.6	0.9	26.16	.47	19.0	2.5	12.28	.23	31.3	2.1	30.42	.22	30.3	1.0
11.9	22.93	.57	37.9	2.1	15.37	.22	42.7	0.6	26.63	.53	16.5	2.3	12.51	.27	29.2	1.6	30.64	.25	29.3	1.1
21.9	23.50	.64	35.8	1.5	15.59	.25	42.1	0.2	27.16	.58	14.2	2.1	12.78	.31	27.6	1.1	30.89	.27	28.2	1.2
31.8	24.14	.70	34.3	1.0	15.84	.27	41.9	0.2	27.74	.62	12.1	1.7	13.09	.34	26.5	0.5	31.16	.29	27.0	1.2
Apr. 10.8	24.84	.73	33.3	0.3	16.11	.28	42.1	0.7	28.36	.65	10.4	1.4	13.43	.35	26.0	0.0	31.45	.31	25.8	1.3
20.8	25.57	.74	33.0	0.4	16.39	.30	42.8	1.0	29.01	.67	9.0	1.0	13.78	.37	26.0	0.7	31.76	.33	24.5	1.3
30.8	26.31	.73	33.4	0.9	16.69	.30	43.8	1.4	29.68	.68	8.0	0.6	14.15	.36	26.7	1.2	32.09	.33	23.2	1.2
May 10.7	27.04	.69	34.3	1.6	16.99	.29	45.2	1.7	30.36	.67	7.4	0.2	14.51	.36	27.9	1.7	32.42	.33	22.0	1.1
20.7	27.73	.64	35.9	2.0	17.28	.29	46.9	2.0	31.03	.64	7.2	0.2	14.87	.34	29.6	2.2	32.75	.32	20.9	1.1
30.7	28.37	.56	37.9	2.6	17.57	.27	48.9	2.1	31.67	.61	7.4	0.6	15.21	.31	31.8	2.6	33.07	.31	19.8	0.9
June 9.6	28.93	.47	40.5	2.9	17.84	.25	51.0	2.3	32.28	.56	8.0	1.1	15.52	.28	34.4	2.8	33.38	.28	18.9	0.7
19.6	29.40	.37	43.4	3.1	18.09	.21	53.3	2.3	32.84	.49	9.1	1.4	15.80	.24	37.2	3.1	33.66	.26	18.2	0.5
29.6	29.77	.25	46.5	3.5	18.30	.18	55.6	2.3	33.33	.42	10.5	1.7	16.04	.19	40.3	3.2	33.92	.22	17.7	0.2
July 9.6	30.02	.14	50.0	3.5	18.48	.14	57.9	2.3	33.75	.33	12.2	2.1	16.23	.14	43.5	3.3	34.14	.18	17.5	0.1
19.5	30.16	.01	53.5	3.5	18.62	.10	60.2	2.2	34.08	.23	14.3	2.3	16.37	.08	46.8	3.3	34.32	.14	17.4	0.1
29.5	30.17	.11	57.0	3.5	18.72	.05	62.4	2.0	34.31	.12	16.6	2.4	16.45	.02	50.1	3.1	34.46	.08	17.5	0.4
Aug. 8.5	30.06	.22	60.5	3.4	18.77	.01	64.4	1.8	34.43	.02	19.0	2.5	16.47	.03	53.2	3.0	34.54	.03	17.9	0.5
18.5	29.84	.34	63.9	3.2	18.78	.04	66.2	1.5	34.45	.09	21.5	2.5	16.44	.09	56.2	2.8	34.57	.01	16.4	0.6
28.4	29.50	.44	67.1	2.9	18.74	.08	67.7	1.3	34.36	.18	24.0	2.3	16.35	.14	59.0	2.4	34.56	.06	19.0	0.7
Sept. 7.4	29.06	.53	70.0	2.6	18.66	.11	69.0	1.1	34.18	.27	26.3	2.2	16.21	.18	61.4	2.2	34.50	.10	19.7	0.8
17.4	28.53	.61	72.6	2.3	18.55	.14	70.1	0.8	33.91	.35	28.5	1.9	16.03	.22	63.6	1.8	34.40	.14	20.5	0.8
27.3	27.92	.67	74.9	1.7	18.41	.16	70.9	0.5	33.56	.41	30.4	1.5	15.81	.25	65.4	1.3	34.26	.15	21.3	0.8
Oct. 7.3	27.25	.71	76.6	1.3	18.25	.17	71.4	0.1	33.15	.45	31.9	1.1	15.56	.26	66.7	0.9	34.11	.17	22.1	0.7
17.3	26.54	.74	77.9	0.8	18.08	.17	71.5	0.1	32.70	.46	33.0	0.6	15.30	.27	67.6	0.4	33.94	.18	22.8	0.7
27.3	25.80	.75	78.7	0.2	17.91	.17	71.4	0.4	32.24	.46	33.6	0.1	15.03	.27	68.0	0.1	33.76	.18	23.5	0.5
Nov. 6.2	25.05	.72	78.9	0.4	17.74	.16	71.0	0.7	31.78	.43	33.7	0.4	14.76	.26	67.9	0.6	33.58	.15	24.0	0.3
16.2	24.33	.69	78.5	1.0	17.58	.14	70.3	1.0	31.35	.39	33.3	0.8	14.50	.24	67.3	1.1	33.43	.14	24.3	0.3
26.2	23.64	.64	77.5	1.5	17.44	.11	69.3	1.3	30.96	.32	32.5	1.4	14.26	.21	66.2	1.6	33.29	.11	24.6	0.1
Dec. 6.2	23.00	.56	76.0	2.1	17.33	.09	68.0	1.5	30.64	.25	31.1	1.8	14.05	.18	64.6	2.0	33.18	.07	24.7	0.1
16.1	22.44	.47	73.9	2.5	17.24	.05	66.5	1.6	30.39	.16	29.3	2.1	13.87	.13	62.6	2.4	33.11	.03	24.6	0.2
26.1	21.97	.36	71.4	3.0	17.19	.02	64.9	1.9	30.23	.07	27.2	2.5	13.74	.09	60.2	2.7	33.08	.00	24.4	0.3
36.1	21.61		68.4		17.17		63.0		30.16		24.7		13.65		57.5		33.08		24.1	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ε Cygni.				μ Aquarii.				12 Year Cat. 1879.				ν Cygni.				61^{1} Cygni.			
	Right Ascension.		Declination North.		Right Ascension.		Declination South.		Right Ascension.		Declination North.		Right Ascension.		Declination North.		Right Ascension.		Declination North.	
	h m 20 42		° ′ +33 36		h m 20 47		° ′ − 9 19		h m 20 51		° ′ +80 11		h m 20 53		° ′ +40 48		h m 21 2		° ′ +38 17	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.1	22.82	.04	72.2	2.5	33.22	.01	71.2	0.6	48.43	0.70	74.3	2.8	38.48	.07	27.0	2.7	39.36	.05	21.5	2.5
11.1	22.78	.01	69.7	2.7	33.23	.05	71.8	0.4	47.73	0.48	71.5	3.2	38.41	.02	24.3	2.8	39.31	.02	19.0	2.6
21.1	22.79	.05	67.0	2.6	33.28	.07	72.2	0.4	47.25	0.25	68.3	3.3	38.39	.03	21.5	2.9	39.29	.03	16.4	2.7
31.0	22.84	.09	64.4	2.6	33.35	.11	72.6	0.3	47.00	0.00	65.0	3.4	38.42	.07	18.6	2.9	39.32	.07	13.7	2.7
Feb. 10.0	22.93	.13	61.8	2.4	33.46	.14	72.9	0.1	47.00	0.25	61.6	3.4	38.49	.12	15.7	2.7	39.39	.12	11.0	2.5
20.0	23.06	.18	59.4	2.1	33.60	.17	73.0	0.0	47.25	0.48	58.2	3.1	38.61	.16	13.0	2.4	39.51	.16	8.5	2.2
Mar. 1.9	23.24	.20	57.3	1.7	33.77	.20	73.0	0.3	47.73	0.70	55.1	2.8	38.77	.21	10.6	2.0	39.67	.20	6.3	1.9
11.9	23.44	.24	55.6	1.3	33.97	.22	72.7	0.4	48.43	0.88	52.3	2.4	38.98	.24	8.6	1.6	39.87	.24	4.4	1.5
21.9	23.68	.27	54.3	0.8	34.19	.24	72.3	0.7	49.31	1.05	49.9	1.8	39.22	.28	7.0	1.1	40.11	.27	2.9	1.0
31.9	23.95	.30	53.5	0.3	34.43	.27	71.6	0.9	50.36	1.16	48.1	1.3	39.50	.31	5.9	0.5	40.38	.31	1.9	0.4
Apr. 10.8	24.25	.31	53.2	0.3	34.70	.28	70.7	1.1	51.52	1.24	46.8	0.7	39.81	.33	5.4	0.0	40.69	.33	1.5	0.1
20.8	24.56	.32	53.5	0.8	34.98	.30	69.6	1.2	52.76	1.27	46.1	0.1	40.14	.35	5.4	0.6	41.02	.34	1.6	0.6
30.8	24.88	.33	54.3	1.3	35.28	.30	68.4	1.4	54.03	1.26	46.0	0.6	40.49	.35	6.0	1.1	41.36	.35	2.2	1.2
May 10.7	25.21	.33	55.6	1.7	35.58	.30	67.0	1.5	55.29	1.21	46.6	1.1	40.84	.35	7.1	1.6	41.71	.36	3.4	1.7
20.7	25.54	.31	57.3	2.1	35.88	.30	65.5	1.5	56.50	1.12	47.7	1.7	41.19	.33	8.7	2.1	42.07	.34	5.1	2.1
30.7	25.85	.29	59.4	2.5	36.18	.28	64.0	1.5	57.62	1.00	49.4	2.3	41.52	.32	10.8	2.4	42.41	.32	7.2	2.4
June 9.7	26.14	.26	61.9	2.7	36.46	.27	62.5	1.4	58.62	0.85	51.7	2.6	41.84	.28	13.2	2.8	42.73	.30	9.6	2.8
19.6	26.40	.23	64.6	2.8	36.73	.24	61.1	1.3	59.47	0.67	54.3	3.0	42.12	.25	16.0	3.0	43.03	.26	12.4	3.0
29.6	26.63	.19	67.4	3.0	36.97	.20	59.8	1.1	60.14	0.49	57.3	3.2	42.37	.20	19.0	3.1	43.29	.22	15.4	3.1
July 9.6	26.82	.15	70.4	3.0	37.17	.17	58.7	1.1	60.63	0.28	60.5	3.4	42.57	.16	22.1	3.1	43.51	.17	18.5	3.2
19.6	26.97	.09	73.4	2.9	37.34	.13	57.6	0.8	60.91	0.07	63.9	3.5	42.73	.10	25.2	3.2	43.68	.13	21.7	3.2
29.5	27.06	.04	76.3	2.8	37.47	.08	56.8	0.6	60.98	0.14	67.4	3.6	42.83	.05	28.4	3.1	43.81	.07	24.9	3.1
Aug. 8.5	27.10	.00	79.1	2.7	37.55	.03	56.2	0.5	60.84	0.35	71.0	3.5	42.88	.00	31.5	2.9	43.88	.02	28.0	3.0
18.5	27.10	.06	81.8	2.4	37.58	.01	55.7	0.3	60.49	0.55	74.5	3.4	42.88	.06	34.4	2.7	43.90	.03	31.0	2.7
28.5	27.04	.10	84.2	2.1	37.57	.05	55.4	0.1	59.94	0.73	77.9	3.1	42.82	.11	37.1	2.5	43.87	.08	33.7	2.5
Sept. 7.4	26.94	.14	86.3	1.8	37.52	.09	55.3	0.1	59.21	0.90	81.0	2.9	42.71	.15	39.6	2.1	43.79	.12	36.2	2.2
17.4	26.80	.17	88.1	1.5	37.43	.12	55.4	0.2	58.31	1.05	83.9	2.5	42.56	.18	41.7	1.8	43.67	.16	38.4	1.9
27.4	26.63	.19	89.6	1.1	37.31	.14	55.6	0.3	57.26	1.17	86.4	2.2	42.38	.22	43.5	1.4	43.51	.19	40.3	1.5
Oct. 7.3	26.44	.21	90.7	0.6	37.17	.15	55.9	0.4	56.09	1.27	88.6	1.7	42.16	.23	44.9	0.9	43.32	.20	41.8	1.0
17.3	26.23	.22	91.3	0.3	37.02	.16	56.3	0.4	54.82	1.34	90.3	1.2	41.93	.24	45.8	0.5	43.12	.22	42.8	0.6
27.3	26.01	.21	91.6	0.2	36.86	.16	56.7	0.6	53.48	1.37	91.5	0.6	41.69	.24	46.3	0.0	42.90	.22	43.4	0.2
Nov. 6.3	25.80	.20	91.4	0.6	36.70	.14	57.3	0.5	52.11	1.37	92.1	0.1	41.45	.24	46.3	0.4	42.68	.21	43.6	0.3
16.2	25.60	.19	90.8	1.0	36.56	.13	57.8	0.6	50.74	1.34	92.2	0.5	41.21	.22	45.9	1.0	42.47	.20	43.3	0.7
26.2	25.41	.16	89.8	1.5	36.43	.10	58.4	0.6	49.40	1.27	91.7	1.1	40.99	.19	44.9	1.4	42.27	.18	42.6	1.3
Dec. 6.2	25.25	.13	88.3	1.9	36.33	.07	59.0	0.6	48.13	1.15	90.6	1.6	40.80	.17	43.5	1.8	42.09	.15	41.3	1.6
16.1	25.12	.09	86.4	2.1	36.26	.04	59.6	0.6	46.98	1.01	89.0	2.2	40.63	.13	41.7	2.2	41.94	.11	39.7	2.0
26.1	25.03	.06	84.3	2.4	36.22	.00	60.2	0.6	45.97	0.84	86.8	2.6	40.50	.09	39.5	2.5	41.83	.08	37.7	2.3
36.1	24.97		81.9		36.22		60.8		45.13		84.2		40.41		37.0		41.75		35.4	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Cygni.				τ Cygni.				α Cephei.				ι Pegasi.				ζ Capricorni.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m 21 8		° ′ +29 50		h m 21 11		° ′ +37 38		h m 21 16		° ′ +62 10		h m 21 17		° ′ +19 23		h m 21 21		° ′ −22 48	
	s		"		s		"		s		"		s		"		s		"	
Jan. 1.1	54.58	.05	35.0	2.2	0.78	.07	46.8	2.4	18.46	.22	86.6	2.8	42.83	.04	72.4	1.9	16.18	.02	72.1	0.2
11.1	54.53	.02	32.8	2.4	0.71	.03	44.4	2.7	18.24	.15	83.8	3.0	42.79	.00	70.5	1.9	16.16	.02	71.9	0.4
21.1	54.51	.03	30.4	2.5	0.68	.01	41.7	2.7	18.09	.08	80.8	3.3	42.79	.02	68.6	1.9	16.18	.05	71.5	0.5
31.0	54.54	.06	27.9	2.4	0.69	.05	39.0	2.6	18.01	.01	77.5	3.3	42.81	.06	66.7	1.9	16.23	.08	71.0	0.7
Feb. 10.0	54.60	.10	25.5	2.2	0.74	.10	36.4	2.6	18.02	.09	74.2	3.2	42.87	.10	64.8	1.7	16.31	.12	70.3	0.8
20.0	54.70	.14	23.3	2.0	0.84	.14	33.8	2.3	18.11	.17	71.0	3.1	42.97	.13	63.1	1.5	16.43	.14	69.5	0.9
Mar. 2.0	54.84	.18	21.3	1.6	0.98	.18	31.5	2.0	18.28	.25	67.9	2.7	43.10	.16	61.6	1.2	16.57	.18	68.6	1.1
11.9	55.02	.21	19.7	1.3	1.16	.22	29.5	1.6	18.53	.32	65.2	2.3	43.26	.19	60.4	0.8	16.75	.21	67.5	1.2
21.9	55.23	.24	18.4	0.8	1.38	.26	27.9	1.0	18.85	.39	62.9	1.9	43.45	.23	59.6	0.5	16.96	.24	66.3	1.3
31.9	55.47	.27	17.6	0.4	1.64	.29	26.9	0.6	19.24	.44	61.0	1.3	43.68	.25	59.1	0.0	17.20	.26	65.0	1.5
Apr. 10.8	55.74	.29	17.2	0.2	1.93	.31	26.3	0.0	19.68	.47	59.7	0.6	43.93	.27	59.1	0.5	17.46	.29	63.5	1.5
20.8	56.03	.31	17.4	0.7	2.24	.33	26.3	0.5	20.15	.51	59.1	0.1	44.20	.29	59.6	0.8	17.75	30	62.0	1.5
30.8	56.34	.32	18.1	1.2	2.57	.35	26.8	1.1	20.66	.51	59.0	0.6	44.49	.30	60.4	1.3	18.05	.32	60.5	1.6
May 10.8	56.66	.32	19.3	1.5	2.92	.34	27.9	1.5	21.17	.52	59.6	1.2	44.79	.31	61.7	1.6	18.37	.33	58.9	1.4
20.7	56.98	.32	20.8	2.0	3.26	.33	29.4	1.9	21.69	.49	60.8	1.7	45.10	.31	63.3	1.9	18.70	.32	57.5	1.4
30.7	57.30	.30	22.8	2.3	3.59	.32	31.3	2.4	22.18	.46	62.5	2.2	45.41	.29	65.2	2.1	19.02	.32	56.1	1.3
June 9.7	57.60	.27	25.1	2.5	3.91	.29	33.7	2.6	22.64	.42	64.7	2.6	45.70	.27	67.3	2.3	19.34	.31	54.8	1.1
19.7	57.87	.25	27.6	2.7	4.20	.26	36.3	2.9	23.06	.36	67.3	3.0	45.97	.25	69.6	2.4	19.65	.28	53.7	0.8
29.6	58.12	.21	30.3	2.8	4.46	.22	39.2	3.0	23.42	.29	70.3	3.3	46.22	.22	72.0	2.5	19.93	.25	52.9	0.7
July 9.6	58.33	.17	33.1	2.9	4.68	.18	42.2	3.1	23.71	.22	73.6	3.4	46.44	.18	74.5	2.5	20.18	.21	52.2	0.4
19.6	58.50	.13	36.0	2.8	4.86	.12	45.3	3.1	23.93	.14	77.0	3.6	46.62	.14	77.0	2.4	20.39	.17	51.8	0.2
29.5	58.63	.08	38.8	2.7	4.98	.08	48.4	3.0	24.07	.06	80.6	3.6	46.76	.09	79.4	2.3	20.56	.12	51.6	0.1
Aug. 8.5	58.71	.02	41.5	2.6	5.06	.02	51.4	2.9	24.13	.02	84.2	3.5	46.85	.04	81.7	2.1	20.68	.07	51.7	0.3
18.5	58.73	.02	44.1	2.3	5.08	.03	54.3	2.7	24.11	.10	87.7	3.3	46.89	.00	83.8	1.9	20.75	.03	52.0	0.5
28.5	58.71	.06	46.4	2.1	5.05	.08	57.0	2.4	24.01	.18	91.0	3.2	46.89	.04	85.7	1.7	20.78	.02	52.5	0.6
Sept. 7.4	58.65	.10	48.5	1.8	4.97	.12	59.4	2.2	23.83	.24	94.2	2.9	46.85	.08	87.4	1.4	20.76	.06	53.1	0.7
17.4	58.55	.14	50.3	1.5	4.85	.16	61.6	1.8	23.59	.30	97.1	2.6	46.77	11	88.8	1.1	20.70	.10	53.8	0.8
27.4	58.41	.17	51.8	1.2	4.69	.18	63.4	1.4	23.29	.36	99.7	2.2	46.66	.14	89.9	0.8	20.60	.13	54.6	0.9
Oct. 7.4	58.24	.18	53.0	0.8	4.51	.21	64.8	1.1	22.93	.39	101.9	1.7	46.52	.15	90.7	0.5	20.47	.15	55.5	0.8
17.3	58.06	.19	53.8	0.4	4.30	.22	65.9	0.6	22.54	.42	103.6	1.3	46.37	.17	91.2	0.2	20.32	.16	56.3	0.8
27.3	57.87	.20	54.2	0.1	4.08	.22	66.5	0.2	22.12	.43	104.9	0.7	46.20	.17	91.4	0.1	20.16	.16	57.1	0.7
Nov. 6.3	57.67	.19	54.1	0.4	3.86	.22	66.7	0.3	21.69	.44	105.6	0.1	46.03	.16	91.3	0.5	20.00	.16	57.8	0.6
16.2	57.48	.18	53.7	0.8	3.64	.20	66.4	0.8	21.25	.43	105.7	0.4	45.87	.16	90.8	0.8	19.84	.14	58.4	0.5
26.2	57.30	.16	52.9	1.2	3.44	.19	65.6	1.2	20.82	.40	105.3	1.0	45.71	.13	90.0	1.1	19.70	.12	58.9	0.3
Dec. 6.2	57.14	.13	51.7	1.6	3.25	.16	64.4	1.6	20.42	.37	104.3	1.6	45.58	.11	88.9	1.3	19.58	.10	59.2	0.1
16.2	57.01	.10	50.1	1.9	3.09	.13	62.8	2.0	20.05	.32	102.7	2.1	45.47	.09	87.6	1.6	19.48	07	59.3	0.1
26.1	56.91	.07	48.2	2.1	2.96	.09	60.8	2.3	19.73	.26	100.6	2.5	45.38	.05	86.0	1.7	19.41	.03	59.4	0.2
36.1	56.84		46.1		2.87		58.5		19.47		98.1		45.33		84.3		19.38		59.2	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Aquarii.				β Cephei (*pr.*).				ξ Aquarii.				74 Cygni.				λ¹ Octantis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m 21 26		° ′ − 5 58		h m 21 27		° ′ +70 8		h m 21 32		° ′ − 8 16		h m 21 33		° ′ +39 59		h m 21 36		° ′ −83 8	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.1	34.99	.02	67.2	0.7	25.10	.37	66.8	2.6	43.24	.03	35.7	0.5	9.45	.10	36.9	2.3	20.64	0.74	79.0	2.9
11.1	34.97	.00	67.9	0.6	24.73	.28	64.2	3.0	43.21	.00	36.2	0.5	9.35	.06	34.6	2.6	19.90	0.45	76.1	3.3
21.1	34.97	.04	68.5	0.5	24.45	.17	61.2	3.2	43.21	.04	36.7	0.4	9.29	.02	32.0	2.7	19.45	0.15	72.8	3.4
31.0	35.01	.07	69.0	0.4	24.28	.06	58.0	3.4	43.25	.06	37.1	0.2	9.27	.02	29.3	2.7	19.30	0.17	69.4	3.6
Feb. 10.0	35.08	.10	69.4	0.2	24.22	.06	54.6	3.3	43.31	.09	37.3	0.1	9.29	.07	26.6	2.7	19.47	0.46	65.8	3.6
20.0	35.18	.12	69.6	0.1	24.28	.18	51.3	3.2	43.40	.13	37.4	0.1	9.36	.11	23.9	2.4	19.93	0.75	62.2	3.5
Mar. 2.0	35.30	.16	69.7	0.2	24.46	.29	48.1	2.9	43.53	.15	37.3	0.3	9.47	.16	21.5	2.1	20.68	1.01	58.7	3.4
11.9	35.46	.19	69.5	0.4	24.75	.40	45.2	2.6	43.68	.19	37.0	0.6	9.63	.21	19.4	1.8	21.69	1.25	55.3	3.1
21.9	35.65	.22	69.1	0.7	25.15	.48	42.6	2.1	43.87	.21	36.4	0.8	9.84	.24	17.6	1.3	22.94	1.47	52.2	2.9
31.9	35.87	.24	68.4	0.9	25.63	.57	40.5	1.6	44.08	.24	35.6	1.0	10.08	.28	16.3	0.8	24.41	1.65	49.3	2.6
Apr. 10.9	36.11	.26	67.5	1.1	26.20	.62	38.9	0.9	44.32	.26	34.6	1.2	10.36	.31	15.5	0.3	26.06	1.80	46.7	2.1
20.8	36.37	.28	66.4	1.3	26.82	.66	38.0	0.4	44.58	.28	33.4	1.3	10.67	.33	15.2	0.3	27.86	1.91	44.6	1.7
30.8	36.65	.30	65.1	1.5	27.48	.67	37.6	0.3	44.86	.30	32.1	1.5	11.00	.35	15.5	0.8	29.77	1.99	42.9	1.3
May 10.8	36.95	.30	63.6	1.6	28.15	.68	37.9	0.9	45.16	.30	30.6	1.7	11.35	.35	16.3	1.3	31.76	2.02	41.6	0.7
20.7	37.25	.31	62.0	1.7	28.83	.65	38.8	1.5	45.46	.31	28.9	1.6	11.70	.35	17.6	1.8	33.78	2.01	40.9	0.3
30.7	37.56	.29	60.3	1.7	29.48	.61	40.3	2.0	45.77	.30	27.3	1.7	12.05	.34	19.4	2.2	35.79	1.96	40.6	0.3
June 9.7	37.85	.29	58.6	1.6	30.09	.54	42.3	2.5	46.07	.29	25.6	1.6	12.39	.31	21.6	2.5	37.75	1.85	40.9	0.8
19.7	38.14	.26	57.0	1 6	30.63	.47	44.8	2.8	46.36	.26	24.0	1.6	12.70	.28	24.1	2.8	39.60	1.71	41.7	1.3
29.6	38.40	.23	55.4	1.5	31.10	.39	47.6	3.2	46.62	.24	22.4	1.4	12.98	.25	26.9	3.0	41.31	1.51	43.0	1.7
July 9.6	38.63	.20	53.9	1.3	31.49	.29	50.8	3.4	46.86	.21	21.0	1.2	13.23	.20	29.9	3.1	42.82	1.27	44.7	2.2
19.6	38.83	.15	52.6	1.2	31.78	.19	54.2	3.6	47.07	.16	19.8	1.0	13.43	.15	33.0	3.1	44.09	1.00	46.9	2.5
29.6	38.98	.12	51.4	0.9	31.97	.08	57.8	3.6	47.23	.12	18.8	0.8	13.58	.10	36.1	3.2	45.09	0.70	49.4	2.8
Aug. 8.5	39.10	.07	50.5	0.7	32.05	.03	61.4	3.6	47.35	.08	18.0	0.6	13.68	.05	39.3	3.0	45.79	0.38	52.2	2.9
18.5	39.17	.02	49.8	0.6	32.02	.14	65.0	3.5	47.43	.03	17.4	0.4	13.73	.00	42.3	2.8	46.17	0.04	55.1	3.0
28.5	39.19	.01	49.2	0.3	31.88	.23	68.5	3.4	47.46	.01	17.0	0.2	13.73	.06	45.1	2.7	46.21	0.30	58.1	3.0
Sept. 7.4	39.18	.06	48.9	0.1	31.65	.33	71.9	3.1	47.45	.05	16.8	0.0	13.67	.10	47.8	2.3	45.91	0.62	61.1	2.9
17.4	39.12	.09	48.8	0.1	31.32	.41	75.0	2.9	47.40	.08	16.8	0.2	13.57	.14	50.1	2.1	45.29	0.93	64.0	2.6
27.4	39.03	.11	48.9	0.2	30.91	.49	77.9	2.4	47.32	.11	17.0	0.3	13.43	.18	52.2	1.7	44.36	1.18	66.6	2.2
Oct. 7.4	38.92	.14	49 1	0.3	30.42	.54	80.3	2.1	47.21	.13	17.3	0.4	13.25	.20	53.9	1.3	43.18	1.41	68.8	1.8
17.3	38.78	.14	49.4	0.4	29.88	.59	82.4	1.5	47.08	.15	17.7	0.5	13.05	.21	55.2	0.9	41.77	1.56	70.6	1.3
27.3	38.64	.15	49 8	0.6	29.29	.61	83.9	1.0	46.93	.14	18.2	0.6	12.84	.23	56.1	0.4	40.21	1.66	71.9	0.7
Nov. 6.3	38.49	.15	50.4	0.6	28.68	.63	84.9	0.5	46.79	.15	18.8	0.6	12.61	.22	56.5	0.1	38.55	1.69	72.6	0.1
16.3	38.34	.13	51.0	0.6	28.05	.62	85.4	0.2	46.64	.13	19.4	0.6	12.39	.22	56.4	0.5	36.86	1.64	72.7	0.5
26.2	38.21	.11	51.6	0.7	27.43	.60	85.2	0.7	46.51	.12	20.0	0.6	12.17	.20	55.9	1.0	35.22	1.54	72.2	1.2
Dec. 6.2	38.10	.09	52.3	0.7	26.83	.56	84.5	1.3	46.39	.09	20.6	0.7	11.97	.18	54.9	1.4	33.68	1.37	71.0	1.7
16.2	38.01	.07	53.0	0.7	26.27	.50	83.2	1.9	46.30	.07	21.3	0.6	11.79	.15	53.5	1.8	32.31	1.16	69.3	2.2
26.1	37.94	.04	53.7	0.7	25.77	.43	81.3	2.3	46.23	.04	21.9	0.6	11.64	.12	51.7	2.2	31.15	0.90	67.1	2.7
36.1	37.90		54.4		25.34		79.0		46.19		22.5		11.52		49.5		30.25		64.4	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ε Pegasi.				11 Cephei.				π² Cygni.				μ Capricorni.				16 Pegasi.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	21 39		+ 9 26		21 40		+70 52		21 43		+48 52		21 48		−13 59		21 48		+25 28	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.1	32.66	.04	39.6	1.3	31.00	.42	57.0	2.5	17.81	.15	39.1	2.4	8.62	.04	44.7	0.3	45.72	.07	63.7	1.9
11.1	32.62	.02	38.3	1.4	30.58	.32	54.5	2.8	17.66	.11	36.7	2.7	8.58	.00	45.0	0.1	45.65	.05	61.8	2.0
21.1	32.60	.02	36.9	1.3	30.26	.21	51.7	3.2	17.55	.06	34.0	2.9	8.58	.02	45.1	0.0	45.60	.01	59.8	2.1
31.1	32.62	.04	35.6	1.3	30.05	.10	48.5	3.3	17.49	.00	31.1	2.9	8.60	.05	45.1	0.1	45.59	.02	57.7	2.1
Feb. 10.0	32.66	.08	34.3	1.2	29.95	.02	45.2	3.3	17.49	.05	28.2	2.9	8.65	.08	45.0	0.3	45.61	.06	55.6	1.9
20.0	32.74	.10	33.1	0.9	29.97	.14	41.9	3.3	17.54	.10	25.3	2.8	8.73	.11	44.7	0.5	45.67	.10	53.7	1.8
Mar. 2.0	32.84	.14	32.2	0.7	30.11	.27	38.6	3.0	17.64	.16	22.5	2.5	8.84	.14	44.2	0.7	45.77	.13	51.9	1.6
11.9	32.98	.18	31.5	0.3	30.38	.38	35.6	2.6	17.80	.22	20.0	2.2	8.98	.18	43.5	0.9	45.90	.17	50.3	1.1
21.9	33.16	.20	31.2	0.1	30.76	.47	33.0	2.2	18.02	.26	17.8	1.6	9.16	.20	42.6	1.1	46.07	.21	49.2	0.8
31.9	33.36	.23	31.1	0.3	31.23	.56	30.8	1.7	18.28	.31	16.2	1.2	9.36	.23	41.5	1.2	46.28	.24	48.4	0.4
Apr. 10.9	33.59	.26	31.4	0.7	31.79	.63	29.1	1.1	18.59	.34	15.0	0.6	9.59	.26	40.3	1.5	46.52	.26	48.0	0.1
20.8	33.85	.28	32.1	1.0	32.42	.67	28.0	0.6	18.93	.37	14.4	0.0	9.85	.28	38.8	1.5	46.78	.29	48.1	0.6
30.8	34.13	.29	33.1	1.3	33.09	.70	27.4	0.1	19.30	.39	14.4	0.5	10.13	.30	37.3	1.6	47.07	.31	48.7	1.0
May 10.8	34.42	.30	34.4	1.6	33.79	.70	27.5	0.8	19.69	.39	14.9	1.1	10.43	.31	35.7	1.7	47.38	.32	49.7	1.4
20.7	34.72	.30	36.0	1.8	34.49	.68	28.3	1.3	20.08	.40	16.0	1.6	10.74	.32	34.0	1.6	47.70	.31	51.1	1.8
30.7	35.02	.30	37.8	2.0	35.17	.64	29.6	1.9	20.48	.38	17.6	2.1	11.06	.31	32.4	1.6	48.01	.31	52.9	2.0
June 9.7	35.32	.28	39.8	2.1	35.81	.59	31.5	2.3	20.86	.35	19.7	2.5	11.37	.30	30.8	1.5	48.32	.30	54.9	2.4
19.7	35.60	.26	41.9	2.1	36.40	.52	33.8	2.7	21.21	.32	22.2	2.8	11.67	.28	29.3	1.4	48.62	.27	57.3	2.5
29.6	35.86	.23	44.0	2.2	36.92	.43	36.5	3.1	21.53	.27	25.0	3.1	11.95	.26	27.9	1.2	48.89	.25	59.8	2.6
July 9.6	36.09	.20	46.2	2.1	37.35	.33	39.6	3.4	21.80	.23	28.1	3.2	12.21	.22	26.7	1.0	49.14	.21	62.4	2.7
19.6	36.29	.16	48.3	1.9	37.68	.22	43.0	3.5	22.03	.17	31.3	3.3	12.43	.18	25.7	0.8	49.35	.16	65.1	2.6
29.6	36.45	.12	50.2	1.8	37.90	.12	46.5	3.6	22.20	.11	34.6	3.4	12.61	.14	24.9	0.5	49.51	.12	67.7	2.6
Aug. 8.5	36.57	.07	52.0	1.7	38.02	.01	50.1	3.7	22.31	.06	38.0	3.3	12.75	.10	24.4	0.3	49.63	.08	70.3	2.5
18.5	36.64	.03	53.7	1.4	38.03	.10	53.8	3.6	22.37	.01	41.3	3.2	12.85	.05	24.1	0.1	49.71	.03	72.8	2.3
28.5	36.67	.01	55.1	1.2	37.93	.21	57.4	3.6	22.36	.06	44.5	3.0	12.90	.01	24.0	0.1	49.74	.02	75.1	2.1
Sept. 7.5	36.66	.05	56.3	1.0	37.72	.30	60.8	3.3	22.30	.12	47.5	2.7	12.91	.04	24.1	0.3	49.72	.06	77.2	1.8
17.4	36.61	.08	57.3	0.7	37.42	.39	64.1	2.9	22.18	.16	50.2	2.4	12.87	.07	24.4	0.5	49.66	.09	79.0	1.5
27.4	36.53	.11	58.0	0.5	37.03	.47	67.0	2.6	22.02	.20	52.6	2.1	12.80	.10	24.9	0.6	49.57	.12	80.5	1.2
Oct. 7.4	36.42	.14	58.5	0.2	36.56	.54	69.6	2.3	21.82	.24	54.7	1.7	12.70	.13	25.5	0.6	49.45	.15	81.7	0.9
17.3	36.28	.14	58.7	0.0	36.02	.59	71.9	1.7	21.58	.25	56.4	1.3	12.57	.14	26.1	0.7	49.30	.16	82.6	0.6
27.3	36.14	.15	58.7	0.2	35.43	.62	73.6	1.2	21.33	.27	57.7	0.7	12.43	.14	26.8	0.7	49.14	.17	83.2	0.2
Nov. 6.3	35.99	.15	58.5	0.5	34.81	.64	74.8	0.7	21.06	.27	58.4	0.2	12.29	.14	27.5	0.7	48.97	.17	83.4	0.2
16.3	35.84	.14	58.0	0.7	34.17	.65	75.5	0.1	20.79	.27	58.6	0.3	12.15	.14	28.2	0.6	48.80	.16	83.2	0.5
26.2	35.70	.12	57.3	0.8	33.52	.63	75.6	0.6	20.52	.26	58.3	0.8	12.01	.12	28.8	0.6	48.64	.16	82.7	0.9
Dec. 6.2	35.58	.11	56.5	1.1	32.89	.59	75.0	1.1	20.26	.24	57.5	1.3	11.89	.10	29.4	0.5	48.48	.13	81.8	1.2
16.2	35.47	.08	55.4	1.2	32.30	.54	73.9	1.6	20.02	.21	56.2	1.8	11.79	.08	29.9	0.4	48.35	.12	80.6	1.5
26.2	35.39	.06	54.2	1.3	31.76	.47	72.3	2.2	19.81	.17	54.4	2.2	11.71	.05	30.3	0.3	48.23	.09	79.1	1.8
36.1	35.33		52.9		31.29		70.1		19.64		52.2		11.66		30.6		48.14		77.3	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	79 Draconis.				α Aquarii.				α Gruis.				π² Pegasi.				θ Aquarii.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	21 51		+73 15		22 0		− 0 46		22 2		−47 24		22 5		+32 42		22 11		− 8 14	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.1	39.52	.51	41.9	2.3	55.91	.05	37.4	0.8	16.21	.10	72.0	1.4	47.48	.11	67.9	1.9	50.93	.05	69.2	0.6
11.1	39.01	.41	39.6	2.8	55.86	.03	38.2	0.8	16.11	.05	70.6	1.6	47.37	.07	66.0	2.2	50.88	.03	69.8	0.4
21.1	38.60	.29	36.8	3.0	55.83	.00	39.0	0.8	16.06	.00	69.0	1.9	47.30	.04	63.8	2.3	50.85	.01	70.2	0.3
31.1	38.31	.16	33.8	3.3	55.83	.03	39.8	0.6	16.06	.04	67.1	2.1	47.26	.01	61.5	2.3	50.84	.02	70.5	0.2
Feb. 10.0	38.15	.02	30.5	3.3	55.86	.06	40.4	0.5	16.10	.08	65.0	2.3	47.25	.04	59.2	2.3	50.86	.05	70.7	0.0
20.0	38.13	.12	27.2	3.3	55.92	.09	40.9	0.3	16.18	.13	62.7	2.5	47.29	.07	56.9	2.1	50.91	.09	70.7	0.2
Mar. 2.0	38.25	.25	23.9	3.1	56.01	.12	41.2	0.1	16.31	.18	60.2	2.5	47.36	.12	54.8	1.9	51.00	.11	70.5	0.4
12.0	38.50	.39	20.8	2.8	56.13	.16	41.3	0.2	16.49	.22	57.7	2.5	47.48	.16	52.9	1.6	51.11	.15	70.1	0.6
21.9	38.89	.50	18.0	2.3	56.29	.19	41.1	0.5	16.71	.26	55.2	2.5	47.64	.20	51.3	1.2	51.26	.18	69.5	0.9
31.9	39.39	.61	15.7	1.9	56.48	.21	40.6	0.7	16.97	.30	52.7	2.4	47.84	.23	50.1	0.7	51.44	.21	68.6	1.1
Apr. 10.9	40.00	.69	13.8	1.3	56.69	.25	39.9	1.0	17.27	.34	50.3	2.3	48.07	.27	49.4	0.2	51.65	.24	67.5	1.2
20.8	40.69	.74	12.5	0.7	56.94	.26	38.9	1.3	17.61	.37	48.0	2.1	48.34	.30	49.2	0.2	51.89	.27	66.3	1.5
30.8	41.43	.78	11.8	0.0	57.20	.29	37.6	1.4	17.98	.39	45.9	1.9	48.64	.32	49.4	0.8	52.16	.28	64.8	1.6
May 10.8	42.21	.79	11.8	0.5	57.49	.30	36.2	1.7	18.37	.42	44.0	1.6	48.96	.33	50.2	1.2	52.44	.30	63.2	1.8
20.7	43.00	.77	12.3	1.2	57.79	.30	34.5	1.8	18.79	.42	42.4	1.3	49.29	.34	51.4	1.6	52.74	.31	61.4	1.8
30.7	43.77	.73	13.5	1.6	58.09	.30	32.7	1.8	19.21	.42	41.1	1.0	49.63	.33	53.0	2.0	53.05	.31	59.6	1.8
June 9.7	44.50	.67	15.1	2.2	58.39	.29	30.9	1.9	19.63	.41	40.1	0.6	49.96	.31	55.0	2.3	53.36	.30	57.8	1.7
19.7	45.17	.60	17.3	2.7	58.68	.28	29.0	1.9	20.04	.39	39.5	0.2	50.27	.30	57.3	2.5	53.66	.29	56.1	1.7
29.6	45.77	.50	20.0	2.9	58.96	.25	27.1	1.7	20.43	.36	39.3	0.2	50.57	.26	59.8	2.8	53.95	.26	54.4	1.5
July 9.6	46.27	.40	22.9	3.3	59.21	.22	25.4	1.7	20.79	.31	39.5	0.6	50.83	.23	62.6	2.8	54.21	.23	52.9	1.3
19.6	46.67	.28	26.2	3.5	59.43	.19	23.7	1.5	21.10	.26	40.1	0.9	51.06	.19	65.4	2.9	54.44	.20	51.6	1.2
29.6	46.95	.16	29.7	3.6	59.62	.14	22.2	1.3	21.36	.21	41.0	1.3	51.25	.14	68.3	2.9	54.64	.16	50.4	0.9
Aug. 8.5	47.11	.04	33.3	3.7	59.76	.10	20.9	1.1	21.57	.15	42.3	1.5	51.39	.09	71.2	2.7	54.80	.11	49.5	0.7
18.5	47.15	.08	37.0	3.6	59.86	.06	19.8	0.9	21.72	.08	43.8	1.8	51.48	.04	73.9	2.7	54.91	.07	48.8	0.5
28.5	47.07	.21	40.6	3.6	59.92	.01	18.9	0.7	21.80	.02	45.6	1.9	51.52	.00	76.6	2.5	54.98	.03	48.3	0.2
Sept. 7.5	46.86	.31	44.2	3.3	59.93	.03	18.2	0.4	21.82	.04	47.5	2.0	51.52	.05	79.1	2.2	55.01	.01	48.1	0.0
17.4	46.55	.42	47.5	3.1	59.90	.06	17.8	0.3	21.78	.09	49.5	1.9	51.47	.09	81.3	1.9	55.00	.05	48.1	0.2
27.4	46.13	.52	50.6	2.8	59.84	.09	17.5	0.0	21.69	.15	51.4	1.9	51.38	.12	83.2	1.6	54.95	.08	48.3	0.3
Oct. 7.4	45.61	.59	53.4	2.4	59.75	.11	17.5	0.2	21.54	.18	53.3	1.7	51.26	.15	84.8	1.3	54.87	.11	48.6	0.4
17.4	45.02	.65	55.8	1.9	59.64	.13	17.7	0.2	21.36	.21	55.0	1.5	51.11	.16	86.1	0.9	54.76	.12	49.0	0.6
27.3	44.37	.70	57.7	1.4	59.51	.14	17.9	0.5	21.15	.23	56.5	1.2	50.95	.18	87.0	0.5	54.64	.14	49.6	0.6
Nov. 6.3	43.67	.74	59.1	0.9	59.37	.13	18.4	0.5	20.92	.23	57.7	0.8	50.77	.19	87.5	0.2	54.50	.13	50.2	0.6
16.3	42.93	.74	60.0	0.3	59.24	.14	18.9	0.7	20.69	.22	58.5	0.5	50.58	.18	87.7	0.3	54.37	.14	50.8	0.7
26.2	42.19	.73	60.3	0.3	59.10	.12	19.6	0.7	20.47	.21	59.0	0.0	50.40	.18	87.4	0.7	54.23	.12	51.5	0.7
Dec. 6.2	41.46	.70	60.0	0.9	58.98	.11	20.3	0.8	20.26	.18	59.0	0.4	50.22	.16	86.7	1.1	54.11	.10	52.2	0.7
16.2	40.76	.64	59.1	1.5	58.87	.08	21.1	0.9	20.08	.15	58.6	0.7	50.06	.14	85.6	1.5	54.01	.09	52.9	0.6
26.2	40.12	.57	57.6	2.1	58.79	.07	22.0	0.8	19.93	.12	57.9	1.2	49.92	.12	84.1	1.8	53.92	.07	53.5	0.6
36.1	39.55		55.5		58.72		22.8		19.81		56.7		49.80		82.3		53.85		54.1	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ν Octantis.				γ Aquarii.				π Aquarii.				σ Aquarii.				α Lacertæ.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m 22 13		° ′ −86 26		h m 22 16		° ′ − 1 51		h m 22 20		° ′ + 0 53		h m 22 25		° ′ −11 9		h m 22 27		° ′ +49 47	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.2	28.30	2.04	62.2	2.7	46.67	.06	42.2	0.8	27.21	.06	59.1	0.9	38.95	.07	38.0	0.4	24.00	.19	68.0	2.0
11.1	26.26	1.53	59.5	3.1	46.61	.04	43.0	0.7	27.15	.04	58.2	0.9	38.88	.04	38.4	0.3	23.81	.16	66.0	2.3
21.1	24.73	0.97	56.4	3.4	46.57	.01	43.7	0.7	27.11	.02	57.3	0.8	38.84	.02	38.7	0.1	23.65	.12	63.7	2.7
31.1	23.76	0.40	53.0	3.6	46.56	.02	44.4	0.5	27.09	.01	56.5	0.7	38.82	.01	38.8	0.0	23.53	.07	61.0	2.8
Feb. 10.0	23.36	0.17	49.4	3.8	46.58	.04	44.9	0.4	27.10	.04	55.8	0.5	38.83	.04	38.8	0.2	23.46	.02	58.2	2.8
20.0	23.53	0.74	45.6	3.7	46.62	.07	45.3	0.2	27.14	.07	55.3	0.4	38.87	.07	38.6	0.3	23.44	.04	55.4	2.8
Mar. 2.0	24.27	1.28	41.9	3.6	46.69	.11	45.5	0.0	27.21	.10	54.9	0.2	38.94	.10	38.3	0.6	23.48	.10	52.6	2.6
12.0	25.55	1.78	38.3	3.5	46.80	.14	45.5	0.3	27.31	.14	54.7	0.2	39.04	.14	37.7	0.9	23.58	.16	50.0	2.3
21.9	27.33	2.24	34.8	3.3	46.94	.18	45.2	0.5	27.45	.17	54.9	0.4	39.18	.17	36.8	1.0	23.74	.21	47.7	2.0
31.9	29.57	2.64	31.5	3.0	47.12	.20	44.7	0.8	27.62	.20	55.3	0.7	39.35	.20	35.8	1.2	23.95	.27	45.7	1.5
Apr. 10.9	32.21	2.99	28.5	2.6	47.32	.23	43.9	1.1	27.82	.23	56.0	0.9	39.55	.23	34.6	1.5	24.22	.31	44.2	1.0
20.9	35.20	3.29	25.9	2.2	47.55	.26	42.8	1.3	28.05	.26	56.9	1.2	39.78	.26	33.1	1.6	24.53	.36	43.2	0.5
30.8	38.49	3.50	23.7	1.7	47.81	.29	41.5	1.5	28.31	.28	58.1	1.5	40.04	.28	31.5	1.7	24.89	.38	42.7	0.1
May 10.8	41.99	3.65	22.0	1.2	48.10	.29	40.0	1.6	28.59	.29	59.6	1.6	40.32	.30	29.8	1.8	25.27	.40	42.8	0.7
20.8	45.64	3.72	20.8	0.8	48.39	.31	38.4	1.8	28.88	.30	61.2	1.8	40.62	.31	28.0	1.8	25.67	.40	43.5	1.2
30.7	49.36	3.70	20.0	0.1	48.70	.30	36.6	1.9	29.18	.31	63.0	1.9	40.93	.32	26.2	1.8	26.07	.41	44.7	1.6
June 9.7	53.06	3.59	19.9	0.3	49.00	.30	34.7	1.9	29.49	.30	64.9	1.9	41.25	.30	24.4	1.8	26.48	.39	46.3	2.1
19.7	56.65	3.39	20.2	0.9	49.30	.28	32.8	1.9	29.79	.28	66.8	2.0	41.55	.30	22.6	1.6	26.87	.36	48.4	2.5
29.7	60.04	3.11	21.1	1.4	49.58	.26	30.9	1.8	30.07	.26	68.8	1.9	41.85	.27	21.0	1.4	27.23	.33	50.9	2.8
July 9.6	63.15	2.74	22.5	1.9	49.84	.24	29.1	1.6	30.33	.23	70.7	1.7	42.12	.25	19.6	1.3	27.56	.28	53.7	3.1
19.6	65.89	2.29	24.4	2.3	50.08	.20	27.5	1.5	30.56	.20	72.4	1.6	42.37	.21	18.3	1.0	27.84	.24	56.8	3.2
29.6	68.18	1.76	26.7	2.6	50.28	.15	26.0	1.3	30.76	.16	74.0	1.5	42.58	.17	17.3	0.8	28.08	.18	60.0	3.4
Aug. 8.6	69.94	1.18	29.3	2.9	50.43	.12	24.7	1.0	30.92	.12	75.5	1.2	42.75	.13	16.5	0.6	28.26	.12	63.4	3.3
18.5	71.12	0.56	32.2	3.0	50.55	.07	23.7	0.9	31.04	.08	76.7	1.0	42.88	.08	15.9	0.3	28.38	.06	66.7	3.3
28.5	71.68	0.08	35.2	3.1	50.62	.03	22.8	0.6	31.12	.03	77.7	0.8	42.96	.04	15.6	0.1	28.44	.00	70.0	3.1
Sept. 7.5	71.60	0.72	38.3	3.0	50.65	.01	22.2	0.4	31.15	.01	78.5	0.6	43.00	.00	15.5	0.2	28.44	.05	73.1	3.0
17.4	70.88	1.34	41.3	2.9	50.64	.04	21.8	0.2	31.14	.04	79.1	0.3	43.00	.03	15.7	0.3	28.39	.10	76.1	2.8
27.4	69.54	1.92	44.2	2.6	50.60	.08	21.6	0.0	31.10	.08	79.4	0.2	42.97	.07	16.0	0.4	28.29	.14	78.9	2.4
Oct. 7.4	67.62	2.41	46.8	2.2	50.52	.10	21.6	0.2	31.02	.10	79.6	0.1	42.90	.10	16.4	0.6	28.15	.19	81.3	2.1
17.4	65.21	2.82	49.0	1.7	50.42	.12	21.8	0.3	30.92	.12	79.5	0.2	42.80	.12	17.0	0.7	27.96	.21	83.4	1.7
27.3	62.39	3.11	50.7	1.1	50.30	.13	22.1	0.5	30.80	.13	79.3	0.4	42.68	.13	17.7	0.8	27.75	.24	85.1	1.3
Nov. 6.3	59.28	3.28	51.8	0.5	50.17	.14	22.6	0.6	30.67	.13	78.9	0.5	42.55	.13	18.5	0.7	27.51	.26	86.4	0.7
16.3	56.00	3.32	52.3	0.1	50.03	.13	23.2	0.6	30.54	.13	78.4	0.7	42.42	.13	19.2	0.7	27.25	.26	87.1	0.3
26.3	52.68	3.24	52.2	0.7	49.90	.12	23.8	0.7	30.41	.12	77.7	0.7	42.29	.13	19.9	0.7	26.99	.26	87.4	0.2
Dec. 6.2	49.44	3.03	51.5	1.4	49.78	.11	24.5	0.8	30.29	.11	77.0	0.8	42.16	.11	20.6	0.6	26.73	.25	87.2	0.8
16.2	46.41	2.72	50.1	1.9	49.67	.09	25.3	0.8	30.18	.10	76.2	0.8	42.05	.10	21.2	0.6	26.48	.24	86.4	1.3
26.2	43.69	2.30	48.2	2.5	49.58	.08	26.1	0.8	30.08	.08	75.4	0.8	41.95	.07	21.8	0.4	26.24	.21	85.1	1.7
36.1	41.39		45.7		49.50		26.9		30.00		74.5		41.88		22.2		26.03		83.4	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Aquarii.				226 Cephei (B.).				10 Lacertæ.				β Octantis.				ζ Pegasi.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m 22 30		° ′ − 0 35		h m 22 30		° ′ +75 44		h m 22 35		° ′ +38 33		h m 22 36		° ′ −81 52		h m 22 36		° ′ +10 20	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.2	30.25	.07	70.1	0.8	36.28	.70	46.7	1.8	1.49	.14	47.8	1.8	19.60	0.97	47.1	2.4	45.21	.08	26.4	1.2
11.1	30.18	.05	70.9	0.8	35.58	.60	44.9	2.4	1.35	.12	46.0	2.1	18.63	0.77	44.7	2.8	45.13	.06	25.2	1.2
21.1	30.13	.03	71.7	0.7	34.98	.49	42.5	2.7	1.23	.08	43.9	2.3	17.86	0.54	41.9	3.2	45.07	.04	24.0	1.3
31.1	30.10	.00	72.4	0.6	34.49	.34	39.8	3.1	1.15	.05	41.6	2.4	17.32	0.30	38.7	3.5	45.03	.01	22.7	1.1
Feb. 10.1	30.10	.03	73.0	0.4	34.15	.18	36.7	3.2	1.10	.01	39.2	2.5	17.02	0.06	35.2	3.6	45.02	.02	21.6	1.1
20.0	30.13	.06	73.4	0.3	33.97	.02	33.5	3.3	1.09	.04	36.7	2.3	16.96	0.17	31.6	3.7	45.04	.05	20.5	0.9
Mar. 2.0	30.19	.09	73.7	0.0	33.95	.14	30.2	3.2	1.13	.08	34.4	2.2	17.13	0.42	27.9	3.7	45.09	.08	19.6	0.7
12.0	30.28	.13	73.7	0.2	34.09	.31	27.0	3.0	1.21	.14	32.2	1.9	17.55	0.64	24.2	3.6	45.17	.12	18.9	0.4
21.9	30.41	.16	73.5	0.5	34.40	.45	24.0	2.6	1.35	.18	30.3	1.5	18.19	0.85	20.6	3.4	45.29	.16	18.5	0.1
31.9	30.57	.20	73.0	0.7	34.85	.60	21.4	2.3	1.53	.22	28.8	1.1	19.04	1.04	17.2	3.2	45.45	.19	18.4	0.2
Apr. 10.9	30.77	.22	72.3	1.0	35.45	.71	19.1	1.7	1.75	.26	27.7	0.7	20.08	1.22	14.0	2.9	45.64	.22	18.6	0.5
20.9	30.99	.25	71.3	1.3	36.16	.80	17.4	1.2	2.01	.30	27.0	0.1	21.30	1.38	11.1	2.6	45.86	.25	19.1	0.9
30.8	31.24	.28	70.0	1.5	36.96	.86	16.2	0.6	2.31	.32	26.9	0.3	22.68	1.49	8.5	2.1	46.11	.27	20.0	1.2
May 10.8	31.52	.29	68.5	1.7	37.82	.91	15.6	0.0	2.63	.35	27.2	0.9	24.17	1.59	6.4	1.6	46.38	.30	21.2	1.5
20.8	31.81	.31	66.8	1.8	38.73	.91	15.6	0.6	2.98	.35	28.1	1.3	25.76	1.65	4.8	1.1	46.68	.30	22.7	1.7
30.8	32.12	.30	65.0	1.9	39.64	.89	16.2	1.1	3.33	.36	29.4	1.7	27.41	1.66	3.7	0.6	46.98	.31	24.4	1.9
June 9.7	32.42	.30	63.1	1.9	40.53	.84	17.3	1.7	3.69	.34	31.1	2.2	29.07	1.65	3.1	0.1	47.29	.31	26.3	2.1
19.7	32.72	.29	61.2	1.9	41.37	.78	19.0	2.3	4.03	.33	33.3	2.4	30.72	1.58	3.0	0.5	47.60	.29	28.4	2.1
29.7	33.01	.27	59.3	1.9	42.15	.68	21.3	2.6	4.36	.30	35.7	2.7	32.30	1.48	3.5	1.0	47.89	.27	30.5	2.2
July 9.6	33.28	.24	57.4	1.7	42.83	.58	23.9	3.0	4.66	.26	38.4	2.9	33.78	1.34	4.5	1.5	48.16	.24	32.7	2.1
19.6	33.52	.21	55.7	1.6	43.41	.46	26.9	3.3	4.92	.22	41.3	3.0	35.12	1.15	6.0	2.0	48.40	.21	34.8	2.0
29.6	33.73	.17	54.1	1.3	43.87	.33	30.2	3.5	5.14	.18	44.3	3.0	36.27	0.94	8.0	2.3	48.61	.17	36.8	2.0
Aug. 8.6	33.90	.13	52.8	1.2	44.20	.19	33.7	3.7	5.32	.13	47.3	3.0	37.21	0.69	10.3	2.7	48.78	.13	38.8	1.8
18.5	34.03	.08	51.6	1.0	44.39	.06	37.4	3.7	5.45	.07	50.3	2.9	37.90	0.42	13.0	2.9	48.91	.08	40.6	1.5
28.5	34.11	.04	50.6	0.7	44.45	.09	41.1	3.7	5.52	.03	53.2	2.8	38.32	0.14	15.9	3.0	48.99	.05	42.1	1.4
Sept. 7.5	34.15	.01	49.9	0.4	44.36	.22	44.8	3.6	5.55	.02	56.0	2.6	38.46	0.15	18.9	3.0	49.04	.00	43.5	1.1
17.5	34.16	.04	49.5	0.3	44.14	.34	48.4	3.4	5.53	.06	58.6	2.3	38.31	0.43	21.9	3.0	49.04	.03	44.6	0.9
27.4	34.12	.06	49.2	0.1	43.80	.47	51.8	3.2	5.47	.10	60.9	2.0	37.88	0.69	24.9	2.7	49.01	.06	45.5	0.7
Oct. 7.4	34.06	.09	49.1	0.1	43.33	.57	55.0	2.8	5.37	.13	62.9	1.7	37.19	0.92	27.6	2.4	48.95	.09	46.2	0.4
17.4	33.97	.11	49.2	0.3	42.76	.67	57.8	2.5	5.24	.16	64.6	1.4	36.27	1.11	30.0	2.0	48.86	.11	46.6	0.2
27.3	33.86	.13	49.5	0.5	42.09	.74	60.3	2.0	5.08	.18	66.0	0.9	35.16	1.27	32.0	1.5	48.75	.13	46.8	0.1
Nov. 6.3	33.73	.13	50.0	0.5	41.35	.80	62.3	1.5	4.90	.19	66.9	0.6	33.89	1.36	33.5	0.9	48.62	.13	46.7	0.2
16.3	33.60	.13	50.5	0.6	40.55	.84	63.8	0.9	4.71	.20	67.5	0.0	32.53	1.41	34.4	0.3	48.49	.13	46.5	0.5
26.3	33.47	.12	51.1	0.7	39.71	.86	64.7	0.3	4.51	.19	67.5	0.3	31.12	1.40	34.7	0.3	48.36	.13	46.0	0.7
Dec. 6.2	33.35	.11	51.8	0.8	38.85	.85	65.0	0.3	4.32	.19	67.2	0.8	29.72	1.33	34.4	1.0	48.23	.12	45.3	0.8
16.2	33.24	.10	52.6	0.8	38.00	.81	64.7	0.9	4.13	.17	66.4	1.2	28.39	1.23	33.4	1.5	48.11	.11	44.5	1.0
26.2	33.14	.08	53.4	0.8	37.19	.76	63.8	1.5	3.96	.16	65.2	1.6	27.16	1.06	31.9	2.1	48.00	.09	43.5	1.1
36.2	33.06		54.2		36.43		62.3		3.80		63.6		26.10		29.8		47.91		42.4	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	λ Pegasi.				ι Cephei.				λ Aquarii.				α Piscis Australis. (*Fomalhaut.*)				ο Andromedæ.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m 22 41		° ′ +23 4		h m 22 46		° ′ +65 42		h m 22 47		° ′ − 8 4		h m 22 52		° ′ −30 6		h m 22 57		° ′ +41 49	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.2	59.05	.11	19.4	1.5	19.03	.39	35.6	1.8	41.33	.08	53.1	0.6	25.86	.10	86.1	0.3	34.75	.17	23.8	1.6
11.1	58.94	.08	17.9	1.6	18.64	.34	33.8	2.2	41.25	.06	53.7	0.4	25.76	.08	85.8	0.6	34.58	.15	22.2	2.0
21.1	58.86	.06	16.3	1.8	18.30	.28	31.6	2.7	41.19	.03	54.1	0.3	25.68	.04	85.2	0.9	34.43	.11	20.2	2.2
31.1	58.80	.03	14.5	1.8	18.02	.20	28.9	2.9	41.16	.02	54.4	0.1	25.64	.02	84.3	1.1	34.32	.08	18.0	2.4
Feb. 10.1	58.77	.01	12.7	1.7	17.82	.12	26.0	3.1	41.14	.02	54.5	0.0	25.62	.01	83.2	1.3	34.24	.04	15.6	2.5
20.0	58.78	.04	11.0	1.6	17.70	.02	22.9	3.1	41.16	.05	54.5	0.3	25.63	.05	81.9	1.6	34.20	.00	13.1	2.5
Mar. 2.0	58.82	.07	9.4	1.4	17.68	.08	19.8	3.1	41.21	.07	54.2	0.4	25.68	.08	80.3	1.8	34.20	.06	10.6	2.3
12.0	58.89	.12	8.0	1.2	17.76	.17	16.7	2.9	41.28	.11	53.8	0.7	25.76	.12	78.5	1.9	34.26	.10	8.3	2.0
22.0	59.01	.15	6.8	0.8	17.93	.26	13.8	2.5	41.39	.15	53.1	0.9	25.88	.16	76.6	2.1	34.36	.16	6.3	1.8
31.9	59.16	.20	6.0	0.4	18.19	.35	11.3	2.1	41.54	.18	52.2	1.1	26.04	.20	74.5	2.1	34.52	.21	4.5	1.4
Apr. 10.9	59.36	.23	5.6	0.0	18.54	.42	9.2	1.7	41.72	.22	51.1	1.4	26.24	.23	72.4	2.2	34.73	.25	3.1	0.9
20.9	59.59	.26	5.6	0.4	18.96	.49	7.5	1.2	41.94	.24	49.7	1.5	26.47	.27	70.2	2.3	34.98	.29	2.2	0.4
30.8	59.85	.28	6.0	0.8	19.45	.54	6.3	0.5	42.18	.27	48.2	1.7	26.74	.30	67.9	2.1	35.27	.33	1.8	0.1
May 10.8	60.13	.31	6.8	1.1	19.99	.57	5.8	0.0	42.45	.29	46.5	1.8	27.04	.32	65.8	2.1	35.60	.35	1.9	0.5
20.8	60.44	.31	7.9	1.6	20.56	.59	5.8	0.7	42.74	.30	44.7	1.9	27.36	.33	63.7	2.0	35.95	.37	2.4	1.1
30.8	60.75	.32	9.5	1.8	21.15	.58	6.5	1.1	43.04	.31	42.8	1.9	27.69	.35	61.7	1.8	36.32	.37	3.5	1.5
June 9.7	61.07	.32	11.3	2.1	21.73	.56	7.6	1.8	43.35	.31	40.9	1.9	28.04	.35	59.9	1.5	36.69	.36	5.0	1.9
19.7	61.39	.30	13.4	2.3	22.29	.53	9.4	2.2	43.66	.30	39.0	1.8	28.39	.33	58.4	1.2	37.05	.35	6.9	2.3
29.7	61.69	.28	15.7	2.5	22.82	.48	11.6	2.6	43.96	.28	37.2	1.6	28.72	.32	57.2	0.9	37.40	.33	9.2	2.6
July 9.7	61.97	.25	18.2	2.5	23.30	.41	14.2	2.9	44.24	.26	35.6	1.5	29.04	.30	56.3	0.6	37.73	.29	11.8	2.8
19.6	62.22	.21	20.7	2.5	23.71	.35	17.1	3.3	44.50	.23	34.1	1.2	29.34	.26	55.7	0.2	38.02	.25	14.6	3.0
29.6	62.43	.18	23.2	2.5	24.06	.27	20.4	3.4	44.73	.18	32.9	1.1	29.60	.21	55.5	0.1	38.27	.21	17.6	3.0
Aug. 8.6	62.61	.13	25.7	2.4	24.33	.19	23.8	3.6	44.91	.15	31.8	0.8	29.81	.18	55.6	0.4	38.48	.15	20.6	3.1
18.5	62.74	.09	28.1	2.2	24.52	.10	27.4	3.6	45.06	.11	31.0	0.5	29.99	.12	56.0	0.8	38.63	.11	23.7	3.0
28.5	62.83	.05	30.3	2.1	24.62	.02	31.0	3.6	45.17	.06	30.5	0.3	30.11	.08	56.8	1.0	38.74	.06	26.7	3.0
Sept. 7.5	62.88	.00	32.4	1.9	24.64	.07	34.6	3.5	45.23	.02	30.2	0.0	30.19	.03	57.8	1.2	38.80	.01	29.7	2.8
17.5	62.88	.04	34.3	1.6	24.57	.15	38.1	3.3	45.25	.02	30.2	0.1	30.22	.02	59.0	1.4	38.81	.04	32.5	2.5
27.4	62.84	.06	35.9	1.3	24.42	.22	41.4	3.1	45.23	.05	30.3	0.3	30.20	.05	60.4	1.4	38.77	.08	35.0	2.3
Oct. 7.4	62.78	.10	37.2	1.0	24.20	.28	44.5	2.8	45.18	.08	30.6	0.5	30.15	.09	61.8	1.5	38.69	.12	37.3	2.0
17.4	62.68	.12	38.2	0.8	23.92	.35	47.3	2.3	45.10	.10	31.1	0.6	30.06	.12	63.3	1.4	38.57	.14	39.3	1.6
27.4	62.56	.14	39.0	0.4	23.57	.39	49.6	2.0	45.00	.11	31.7	0.7	29.94	.14	64.7	1.3	38.43	.17	40.9	1.3
Nov. 6.3	62.42	.14	39.4	0.1	23.18	.42	51.6	1.4	44.89	.13	32.4	0.7	29.80	.15	66.0	1.2	38.26	.19	42.2	0.8
16.3	62.28	.15	39.5	0.2	22.76	.45	53.0	0.9	44.76	.12	33.1	0.8	29.65	.16	67.2	0.9	38.07	.20	43.0	0.4
26.3	62.13	.15	39.3	0.5	22.31	.47	53.9	0.3	44.64	.12	33.9	0.7	29.49	.15	68.1	0.7	37.87	.21	43.4	0.1
Dec. 6.2	61.98	.14	38.8	0.8	21.84	.46	54.2	0.2	44.52	.12	34.6	0.7	29.34	.14	68.8	0.4	37.66	.20	43.3	0.5
16.2	61.84	.12	38.0	1.1	21.38	.45	54.0	0.9	44.40	.10	35.3	0.6	29.20	.12	69.2	0.2	37.46	.19	42.8	1.0
26.2	61.72	.12	36.9	1.4	20.93	.42	53.1	1.4	44.30	.09	35.9	0.6	29.08	.11	69.4	0.2	37.27	.18	41.8	1.4
36.2	61.60		35.5		20.51		51.7		44.21		36.5		28.97		69.2		37.09		40.4	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Pegasi. (*Markab.*)				φ Aquarii.				ο Cephei.				τ Pegasi.				θ Piscium.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	23 0		+14 41		23 9		− 6 33		23 14		+67 35		23 15		+23 13		23 23		+ 5 51	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.2	3.61	.11	59.2	1.2	26.07	.09	26.9	0.6	45.21	.46	64.3	1.4	58.07	.12	36.2	1.2	10.96	.10	43.3	0.9
11.2	3.50	.08	58.0	1.3	25.98	.08	27.5	0.5	44.75	.42	62.9	1.9	57.95	.10	35.0	1.5	10.86	.09	42.4	0.9
21.1	3.42	.06	56.7	1.3	25.90	.05	28.0	0.4	44.33	.36	61.0	2.4	57.85	.09	33.5	1.6	10.77	.07	41.5	0.9
31.1	3.36	.03	55.4	1.3	25.85	.04	28.4	0.2	43.97	.28	58.6	2.7	57.76	.06	31.9	1.6	10.70	.05	40.6	0.9
Feb. 10.1	3.33	.01	54.1	1.3	25.81	.00	28.6	0.0	43.69	.19	55.9	2.9	57.70	.03	30.3	1.7	10.65	.03	39.7	0.7
20.1	3.32	.02	52.8	1.1	25.81	.02	28.6	0.1	43.50	.10	53.0	3.1	57.67	.00	28.6	1.5	10.62	.01	39.0	0.6
Mar. 2.0	3.34	.06	51.7	0.9	25.83	.06	28.5	0.4	43.40	.00	49.9	3.1	57.67	.04	27.1	1.4	10.63	.04	38.4	0.4
12.0	3.40	.10	50.8	0.7	25.89	.09	28.1	0.6	43.40	.11	46.8	2.9	57.71	.08	25.7	1.2	10.67	.07	38.0	0.1
22.0	3.50	.13	50.1	0.4	25.98	.12	27.5	0.8	43.51	.22	43.9	2.8	57.79	.12	24.5	0.9	10.74	.11	37.9	0.1
31.9	3.63	.17	49.7	0.1	26.10	.16	26.7	1.1	43.73	.32	41.1	2.4	57.91	.17	23.6	0.5	10.85	.15	38.0	0.4
Apr. 10.9	3.80	.21	49.6	0.3	26.26	.20	25.6	1.3	44.05	.40	38.7	1.9	58.08	.20	23.1	0.1	11.00	.18	38.4	0.7
20.9	4.01	.24	49.9	0.7	26.46	.23	24.3	1.5	44.45	.48	36.8	1.5	58.28	.24	23.0	0.2	11.18	.22	39.1	1.0
30.9	4.25	.27	50.6	1.0	26.69	.25	22.8	1.7	44.93	.55	35.3	0.9	58.52	.27	23.2	0.6	11.40	.25	40.1	1.3
May 10.8	4.52	.29	51.6	1.3	26.94	.28	21.1	1.8	45.48	.59	34.4	0.4	58.79	.29	23.8	1.0	11.65	.27	41.4	1.5
20.8	4.81	.30	52.9	1.6	27.22	.30	19.3	1.9	46.07	.62	34.0	0.3	59.08	.31	24.8	1.4	11.92	.30	42.9	1.7
30.8	5.11	.31	54.5	1.9	27.52	.31	17.4	2.0	46.69	.63	34.3	0.8	59.39	.32	26.2	1.7	12.22	.30	44.6	1.9
June 9.7	5.42	.32	56.4	2.0	27.83	.31	15.4	1.9	47.32	.62	35.1	1.4	59.71	.33	27.9	2.0	12.52	.31	46.5	2.0
19.7	5.74	.30	58.4	2.2	28.14	.31	13.5	1.9	47.94	.60	36.5	1.8	60.04	.31	29.9	2.1	12.83	.31	48.5	2.0
29.7	6.04	.28	60.6	2.2	28.45	.29	11.6	1.7	48.54	.55	38.3	2.3	60.35	.30	32.0	2.3	13.14	.29	50.5	2.1
July 9.7	6.32	.26	62.8	2.3	28.74	.26	9.9	1.6	49.09	.50	40.6	2.8	60.65	.27	34.3	2.5	13.43	.27	52.6	2.0
19.6	6.58	.23	65.1	2.2	29.00	.24	8.3	1.4	49.59	.43	43.4	3.0	60.92	.24	36.8	2.4	13.70	.24	54.6	1.9
29.6	6.81	.19	67.3	2.1	29.24	.21	6.9	1.1	50.02	.35	46.4	3.3	61.16	.21	39.2	2.5	13.94	.21	56.5	1.7
Aug. 8.6	7.00	.15	69.4	2.0	29.45	.16	5.8	0.9	50.37	.27	49.7	3.5	61.37	.17	41.7	2.4	14.15	.17	58.2	1.6
18.6	7.15	.11	71.4	1.8	29.61	.13	4.9	0.7	50.64	.18	53.2	3.6	61.54	.12	44.1	2.2	14.32	.13	59.8	1.4
28.5	7.26	.06	73.2	1.7	29.74	.08	4.2	0.4	50.82	.09	56.8	3.6	61.66	.09	46.3	2.1	14.45	.09	61.2	1.1
Sept. 7.5	7.32	.03	74.9	1.4	29.82	.04	3.8	0.2	50.91	.01	60.4	3.6	61.75	.04	48.4	1.9	14.54	.06	62.3	1.0
17.5	7.35	.01	76.3	1.2	29.86	.00	3.6	0.1	50.92	.08	64.0	3.5	61.79	.00	50.3	1.7	14.60	.01	63.3	0.6
27.5	7.34	.04	77.5	0.9	29.86	.03	3.7	0.3	50.84	.17	67.5	3.3	61.79	.03	52.0	1.4	14.61	.02	63.9	0.5
Oct. 7.4	7.30	.07	78.4	0.7	29.83	.06	4.0	0.4	50.67	.24	70.8	3.1	61.76	.06	53.4	1.2	14.59	.04	64.4	0.2
17.4	7.23	.10	79.1	0.4	29.77	.08	4.4	0.5	50.43	.31	73.9	2.7	61.70	.09	54.6	0.9	14.55	.08	64.6	0.1
27.4	7.13	.11	79.5	0.2	29.69	.10	4.9	0.7	50.12	.36	76.6	2.3	61.61	.11	55.5	0.6	14.47	.09	64.7	0.2
Nov. 6.3	7.02	.13	79.7	0.1	29.59	.11	5.6	0.7	49.76	.42	78.9	1.8	61.50	.13	56.1	0.3	14.38	.10	64.5	0.3
16.3	6.89	.13	79.6	0.3	29.48	.12	6.3	0.8	49.34	.46	80.7	1.3	61.37	.13	56.4	0.0	14.28	.12	64.2	0.4
26.3	6.76	.13	79.3	0.5	29.36	.12	7.1	0.7	48.88	.49	82.0	0.8	61.24	.14	56.4	0.3	14.16	.12	63.8	0.6
Dec. 6.3	6.63	.13	78.8	0.8	29.24	.12	7.8	0.7	48.39	.50	82.8	0.1	61.10	.14	56.1	0.6	14.04	.12	63.2	0.7
16.2	6.50	.12	78.0	0.9	29.12	.11	8.5	0.8	47.89	.49	82.9	0.4	60.96	.14	55.5	0.9	13.92	.11	62.5	0.8
26.2	6.38	.10	77.1	1.1	29.01	.10	9.3	0.6	47.40	.48	82.5	1.0	60.82	.13	54.6	1.1	13.81	.11	61.7	0.9
36.2	6.28		76.0		28.91		9.9		46.92		81.5		60.69		53.5		13.70		60.8	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	λ Andromedæ.				ι Piscium.				γ Cephei.				i^1 Aquarii.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m 23 32		° ′ +45 56		h m 23 35		° ′ + 5 6		h m 23 35		° ′ +77 6		h m 23 39		° ′ −18 47	
	s		″		s		″		s		″		s		″	
Jan. 1.2	57.04		65.8		5.96		57.5		29.20		43.5		18.46		66.5	
		.21		1.3		.11		0.9		0.89		1.0		.11		0.3
11.2	56.83		64.5		5.85		56.6		28.31		42.5		18.35		66.8	
		.19		1.7		.09		0.9		0.82		1.5		.10		0.0
21.2	56.64		62.8		5.76		55.7		27.49		41.0		18.25		66.8	
		.17		2.0		.08		0.8		0.73		2.1		.08		0.2
31.1	56.47		60.8		5.68		54.9		26.76		38.9		18.17		66.6	
		.13		2.3		.06		0.8		0.61		2.5		.06		0.4
Feb. 10.1	56.34		58.5		5.62		54.1		26.15		36.4		18.11		66.2	
		.09		2.5		.03		0.7		0.46		2.8		.04		0.7
20.1	56.25		56.0		5.59		53.4		25.69		33.6		18.07		65.5	
		.05		2.5		.01		0.5		0.30		3.1		.00		0.9
Mar. 2.0	56.20		53.5		5.58		52.9		25.39		30.5		18.07		64.6	
		.01		2.4		.03		0.3		0.12		3.1		.02		1.2
12.0	56.21		51.1		5.61		52.6		25.27		27.4		18.09		63.4	
		.06		2.3		.06		0.1		0.07		3.2		.06		1.3
22.0	56.27		48.8		5.67		52.5		25.34		24.2		18.15		62.1	
		.12		2.0		.10		0.1		0.25		3.0		.10		1.6
Apr. 1.0	56.39		46.8		5.77		52.6		25.59		21.2		18.25		60.5	
		.17		1.7		.14		0.5		0.42		2.7		.14		1.8
10.9	56.56		45.1		5.91		53.1		26.01		18.5		18.39		58.7	
		.23		1.4		.17		0.7		0.58		2.3		.17		1.9
20.9	56.79		43.7		6.08		53.8		26.59		16.2		18.56		56.8	
		.28		0.8		.21		1.0		0.72		1.9		.22		2.1
30.9	57.07		42.9		6.29		54.8		27.31		14.3		18.78		54.7	
		.33		0.4		.25		1.3		0.84		1.4		.24		2.1
May 10.9	57.40		42.5		6.54		56.1		28.15		12.9		19.02		52.6	
		.35		0.1		.27		1.5		0.93		0.9		.28		2.2
20.8	57.75		42.6		6.81		57.6		29.08		12.0		19.30		50.4	
		.38		0.7		.29		1.7		0.98		0.2		.30		2.1
30.8	58.13		43.3		7.10		59.3		30.06		11.8		19.60		48.3	
		.39		1.1		.30		1.8		1.01		0.3		.31		2.1
June 9.8	58.52		44.4		7.40		61.1		31.07		12.1		19.91		46.2	
		.39		1.5		.31		2.0		1.00		0.9		.32		2.0
19.7	58.91		45.9		7.71		63.1		32.07		13.0		20.23		44.2	
		.38		2.0		.31		2.0		0.97		1.5		.32		1.7
29.7	59.29		47.9		8.02		65.1		33.04		14.5		20.55		42.5	
		.37		2.3		.30		2.0		0.92		1.9		.32		1.6
July 9.7	59.66		50.2		8.32		67.1		33.96		16.4		20.87		40.9	
		.34		2.6		.27		2.0		0.84		2.4		.29		1.3
19.6	60.00		52.8		8.59		69.1		34.80		18.8		21.16		39.6	
		.30		2.8		.25		1.9		0.73		2.8		.27		1.0
29.6	60.30		55.6		8.84		71.0		35.53		21.6		21.43		38.6	
		.26		3.0		.22		1.7		0.63		3.1		.24		0.7
Aug. 8.6	60.56		58.6		9.06		72.7		36.16		24.7		21.67		37.9	
		.21		3.1		.19		1.5		0.49		3.4		.20		0.3
18.6	60.77		61.7		9.25		74.2		36.65		28.1		21.87		37.6	
		.16		3.1		.14		1.4		0.35		3.6		.16		0.1
28.5	60.93		64.8		9.39		75.6		37.00		31.7		22.03		37.5	
		.11		3.0		.11		1.1		0.22		3.7		.12		0.3
Sept. 7.5	61.04		67.8		9.50		76.7		37.22		35.4		22.15		37.8	
		.06		3.0		.06		0.9		0.06		3.8		.07		0.6
17.5	61.10		70.8		9.56		77.6		37.28		39.2		22.22		38.4	
		.00		2.8		.03		0.6		0.08		3.7		.03		0.8
27.5	61.10		73.6		9.59		78.2		37.20		42.9		22.25		39.2	
		.03		2.6		.01		0.4		0.22		3.6		.00		0.9
Oct. 7.4	61.07		76.2		9.58		78.6		36.98		46.5		22.25		40.1	
		.08		2.3		.03		0.2		0.35		3.4		.04		1.1
17.4	60.99		78.5		9.55		78.8		36.63		49.9		22.21		41.2	
		.12		2.1		.06		0.0		0.49		3.1		.06		1.2
27.4	60.87		80.6		9.49		78.8		36.14		53.0		22.15		42.4	
		.15		1.6		.08		0.2		0.60		2.8		.09		1.2
Nov. 6.4	60.72		82.2		9.41		78.6		35.54		55.8		22.06		43.6	
		.17		1.3		.10		0.3		0.71		2.3		.11		1.1
16.3	60.55		83.5		9.31		78.3		34.83		58.1		21.95		44.7	
		.20		0.8		.11		0.5		0.80		1.9		.12		1.1
26.3	60.35		84.3		9.20		77.8		34.03		60.0		21.83		45.8	
		.21		0.4		.11		0.6		0.86		1.3		.12		0.9
Dec. 6.3	60.14		84.7		9.09		77.2		33.17		61.3		21.71		46.7	
		.21		0.1		.12		0.7		0.91		0.7		.13		0.8
16.3	59.93		84.6		8.97		76.5		32.26		62.0		21.58		47.5	
		.22		0.6		.11		0.8		0.92		0.0		.12		0.6
26.2	59.71		84.0		8.86		75.7		31.34		62.0		21.46		48.1	
		.21		1.0		.11		0.9		0.91		0.5		.12		0.3
36.2	59.50		83.0		8.75		74.8		30.43		61.5		21.34		48.4	

(CONSTANTS OF STRUVE AND PETERS.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Sculptoris.				γ¹ Octantis.				Groombridge 4163.				ω Piscium.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *North.*	
	h m 23 44		° ′ −28 38		h m 23 46		° ′ −82 32		h m 23 50		° ′ +73 52		h m 23 54		° ′ + 6 20	
	s		″		s		″		s		″		s		″	
Jan. 1.2	0.55	.13	75.6	0.0	29.39	1.41	51.8	1.6	15.04	.70	89.0	0.8	28.21	.11	31.6	0.9
11.2	0.42	.11	75.6	0.3	27.98	1.27	50.2	2.2	14.34	.66	88.2	1.3	28.10	.11	30.7	0.8
21.2	0.31	.10	75.3	0.6	26.71	1.08	48.0	2.6	13.68	.60	86.9	2.0	27.99	.09	29.9	0.9
31.1	0.21	.07	74.7	0.9	25.63	0.88	45.4	3.1	13.08	.51	84.9	2.3	27.90	.08	29.0	0.8
Feb. 10.1	0.14	.05	73.8	1.2	24.75	0.65	42.3	3.4	12.57	.40	82.6	2.8	27.82	.05	28.2	0.7
20.1	0.09	.01	72.6	1.5	24.10	0.41	38.9	3.6	12.17	.27	79.8	2.9	27.77	.02	27.5	0.5
Mar. 2.1	0.08	.02	71.1	1.7	23.69	0.15	35.3	3.7	11.90	.13	76.9	3.1	27.75	.00	27.0	0.4
12.0	0.10	.05	69.4	2.0	23.54	0.10	31.6	3.8	11.77	.01	73.8	3.1	27.75	.04	26.6	0.1
22.0	0.15	.10	67.4	2.1	23.64	0.35	27.8	3.8	11.78	.16	70.7	3.0	27.79	.08	26.5	0.1
Apr. 1.0	0.25	.14	65.3	2.2	23.99	0.60	24.0	3.7	11.94	.30	67.7	2.7	27.87	.12	26.6	0.3
11.0	0.39	.18	63.1	2.4	24.59	0.83	20.3	3.5	12.24	.44	65.0	2.4	27.99	.16	26.9	0.7
20.9	0.57	.22	60.7	2.4	25.42	1.05	16.8	3.2	12.68	.56	62.6	2.0	28.15	.20	27.6	0.9
30.9	0.79	.25	58.3	2.5	26.47	1.25	13.6	2.9	13.24	.67	60.6	1.5	28.35	.23	28.5	1.2
May 10.9	1.04	.29	55.8	2.4	27.72	1.41	10.7	2.5	13.91	.74	59.1	0.9	28.58	.26	29.7	1.4
20.8	1.33	.31	53.4	2.3	29.13	1.56	8.2	2.1	14.65	.79	58.2	0.3	28.84	.28	31.1	1.7
30.8	1.64	.33	51.1	2.1	30.69	1.66	6.1	1.6	15.44	.83	57.9	0.2	29.12	.30	32.8	1.8
June 9.8	1.97	.34	49.0	1.9	32.35	1.73	4.5	1.0	16.27	.84	58.1	0.8	29.42	.31	34.6	2.0
19.8	2.31	.34	47.1	1.6	34.08	1.74	3.5	0.5	17.11	.82	58.9	1.3	29.73	.31	36.6	2.0
29.7	2.65	.33	45.5	1.4	35.82	1.72	3.0	0.1	17.93	.78	60.2	1.8	30.04	.30	38.6	2.0
July 9.7	2.98	.32	44.1	1.0	37.54	1.65	3.1	0.7	18.71	.72	62.0	2.3	30.34	.29	40.6	2.0
19.7	3.30	.29	43.1	0.6	39.19	1.53	3.8	1.2	19.43	.65	64.3	2.7	30.63	.26	42.6	1.9
29.6	3.59	.26	42.5	0.2	40.72	1.36	5.0	1.7	20.08	.56	67.0	3.0	30.89	.23	44.5	1.8
Aug. 8.6	3.85	.21	42.3	0.1	42.08	1.15	6.7	2.2	20.64	.46	70.0	3.3	31.12	.20	46.3	1.6
18.6	4.06	.18	42.4	0.5	43.23	0.90	8.9	2.5	21.10	.36	73.3	3.6	31.32	.16	47.9	1.4
28.6	4.24	.13	42.9	0.8	44.13	0.62	11.4	2.9	21.46	.24	76.9	3.6	31.48	.13	49.3	1.2
Sept. 7.5	4.37	.08	43.7	1.1	44.75	0.33	14.3	3.0	21.70	.12	80.5	3.7	31.61	.08	50.5	1.0
17.5	4.45	.04	44.8	1.3	45.08	0.01	17.3	3.1	21.82	.01	84.2	3.7	31.69	.05	51.5	0.7
27.5	4.49	.00	46.1	1.5	45.09	0.29	20.4	3.1	21.83	.11	87.9	3.6	31.74	.01	52.2	0.5
Oct. 7.5	4.49	.04	47.6	1.6	44.80	0.60	23.5	2.9	21.72	.22	91.5	3.4	31.75	.02	52.7	0.3
17.4	4.45	.07	49.2	1.6	44.20	0.86	26.4	2.6	21.50	.33	94.9	3.1	31.73	.04	53.0	0.1
27.4	4.38	.10	50.8	1.6	43.34	1.10	29.0	2.3	21.17	.42	98.0	2.8	31.69	.07	53.1	0.1
Nov. 6.4	4.28	.12	52.4	1.4	42.24	1.30	31.3	1.8	20.75	.51	100.8	2.4	31.62	.08	53.0	0.3
16.4	4.16	.14	53.8	1.2	40.94	1.44	33.1	1.2	20.24	.59	103.2	2.0	31.54	.10	52.7	0.4
26.3	4.02	.14	55.0	1.1	39.50	1.54	34.3	0.6	19.65	.65	105.2	1.4	31.44	.11	52.3	0.5
Dec. 6.3	3.88	.14	56.1	0.8	37.96	1.56	34.9	0.0	19.00	.69	106.6	0.8	31.33	.11	51.8	0.7
16.3	3.74	.14	56.9	0.5	36.40	1.55	34.9	0.6	18.31	.71	107.4	0.2	31.22	.12	51.1	0.7
26.2	3.60	.13	57.4	0.1	34.85	1.47	34.3	1.3	17.60	.71	107.6	0.4	31.10	.12	50.4	0.8
36.2	3.47		57.5		33.38		33.0		16.89		107.2		30.98		49.6	

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ′ ″	′ ″	s	″	m s	′ ″	m s	h m s
Jan. 1	18 45 17.66	18.31	−23 2 27.2	26.6	11.043	+11.95	+ 3 32.52	16 17.85	1 11.06	18 41 45.21
2	18 49 42.55	43.29	22 57 26.8	25.9	11.030	13.08	4 0.87	16 17.86	1 11.02	18 45 41.77
3	18 54 7.06	7.88	22 51 59.0	58.0	11.013	14.22	4 28.85	16 17.86	1 10.97	18 49 38.32
4	18 58 31.19	32.10	22 46 3.9	2.6	10.996	15.36	4 56.44	16 17.86	1 10.93	18 53 34.88
5	19 2 54.91	55.90	22 39 41.6	40.1	10.979	16.49	5 23.59	16 17.85	1 10.87	18 57 31.44
6	19 7 18.19	19.26	−22 32 52.4	50.8	10.960	+17.61	+ 5 50.31	16 17.83	1 10.81	19 1 28.00
7	19 11 40.98	42.13	22 25 36.5	34.5	10.940	18.72	6 16.55	16 17.81	1 10.74	19 5 24.55
8	19 16 3.27	4.50	22 17 54.2	52.0	10.918	19.81	6 42.29	16 17.79	1 10.67	19 9 21.11
9	19 20 25.05	26.35	22 9 45.5	43.0	10.896	20.90	7 7.52	16 17.76	1 10.60	19 13 17.66
10	19 24 46.28	47.65	22 1 10.8	8.1	10.873	21.98	7 32.20	16 17.72	1 10.52	19 17 14.22
11	19 29 6.95	8.39	−21 52 10.4	7.4	10.849	+23.05	+ 7 56.32	16 17.68	1 10.44	19 21 10.78
12	19 33 27.04	28.55	21 42 44.4	41.1	10.825	24.10	8 19.85	16 17.63	1 10.36	19 25 7.34
13	19 37 46.53	48.11	21 32 53.1	49.5	10.800	25.15	8 42.79	16 17.57	1 10.28	19 29 3.89
14	19 42 5.40	7.04	21 22 36.9	32.9	10.773	26.19	9 5.11	16 17.50	1 10.19	19 33 0.45
15	19 46 23.63	25.33	21 11 55.9	51.6	10.746	27.22	9 26.78	16 17.43	1 10.10	19 36 57.01
16	19 50 41.22	42.98	−21 0 50.5	45.9	10.719	+28.22	+ 9 47.82	16 17.36	1 10.01	19 40 53.56
17	19 54 58.15	59.95	20 49 21.1	16.1	10.691	29.22	10 8.19	16 17.28	1 9.91	19 44 50.12
18	19 59 14.39	16.24	20 37 27.8	22.5	10.662	30.21	10 27.88	16 17.19	1 9.81	19 48 46.67
19	20 3 29.94	31.86	20 25 11.2	5.6	10.633	31.18	10 46.87	16 17.10	1 9.71	19 52 43.23
20	20 7 44.78	46.75	20 12 31.4	25.5	10.603	32.13	11 5.15	16 17.00	1 9.61	19 56 39.79
21	20 11 58.88	60.88	−19 59 28.7	22.4	10.572	+33.08	+11 22.70	16 16.91	1 9.51	20 0 36.34
22	20 16 12.24	14.28	19 45 63.6	57.0	10.541	34.00	11 39.49	16 16.81	1 9.40	20 4 32.90
23	20 20 24.84	26.93	19 32 16.6	9.6	10.509	34.91	11 55.53	16 16.70	1 9.30	20 8 29.46
24	20 24 36.65	38.78	19 18 7.9	0.5	10.476	35.81	12 10.78	16 16.59	1 9.19	20 12 26.01
25	20 28 47.68	49.84	19 3 37.8	30.0	10.443	36.69	12 25.25	16 16.47	1 9.08	20 16 22.57
26	20 32 57.91	60.10	−18 48 46.9	38.8	10.409	+37.55	+12 38.92	16 16.36	1 8.97	20 20 19.12
27	20 37 7.32	9.54	18 33 35.5	27.2	10.375	38.40	12 51.77	16 16.24	1 8.85	20 24 15.68
28	20 41 15.91	18.17	18 17 63.7	55.1	10.341	39.23	13 3.80	16 16.12	1 8.74	20 28 12.23
29	20 45 23.66	25.94	18 2 12.3	3.4	10.306	40.04	13 15.00	16 16.00	1 8.62	20 32 8.79
30	20 49 30.58	32.88	17 45 61.6	52.4	10.272	40.84	13 25.37	16 15.87	1 8.51	20 36 5.34
31	20 53 36.68	39.00	−17 29 31.8	22.4	10.237	+41.62	+13 34.89	16 15.74	1 8.39	20 40 1.90
Feb. 1	20 57 41.94	44.28	17 12 43.4	33.7	10.202	42.39	13 43.59	16 15.60	1 8.27	20 43 58.45
2	21 1 46.35	48.70	16 55 37.1	27.0	10.167	43.14	13 51.45	16 15.46	1 8.16	20 47 55.01
3	21 5 49.93	52.29	16 38 13.1	2.8	10.132	43.86	13 58.46	16 15.32	1 8.04	20 51 51.56
4	21 9 52.66	55.03	16 20 31.6	21.1	10.097	44.58	14 4.62	16 15.17	1 7.94	20 55 48.12
5	21 13 54.57	56.95	−16 2 33.3	22.5	10.063	+45.28	+14 9.95	16 15.00	1 7.82	20 59 44.67
6	21 17 55.65	58.03	15 44 18.5	7.5	10.028	45.95	14 14.47	16 14.84	1 7.71	21 3 41.23
7	21 21 55.92	58.30	15 25 47.6	36.4	9.994	46.61	14 18.18	16 14.68	1 7.59	21 7 37.78
8	21 25 55.38	57.76	15 6 61.0	49.6	9.961	47.25	14 21.08	16 14.51	1 7.48	21 11 34.34
9	21 29 54.03	56.41	14 47 59.2	47.6	9.928	47.88	14 23.17	16 14.33	1 7.37	21 15 30.89
10	21 33 51.90	54.28	−14 28 42.4	30.6	9.895	+48.50	+14 24.47	16 14.15	1 7.26	21 19 27.45
11	21 37 48.99	51.37	14 8 71.2	59.3	9.863	49.09	14 25.00	16 13.97	1 7.15	21 23 24.00
12	21 41 45.32	47.69	13 49 25.9	13.8	9.832	49.67	14 24.78	16 13.78	1 7.04	21 27 20.55
13	21 45 40.90	43.26	13 29 26.8	14.7	9.801	50.24	14 23.81	16 13.58	1 6.93	21 31 17.11
14	21 49 35.75	38.10	13 9 14.6	2.4	9.771	50.78	14 22.09	16 13.38	1 6.82	21 35 13.66
15	21 53 29.87	32.20	−12 48 49.5	37.2	9.741	+51.31	+14 19.65	16 13.18	1 6.72	21 39 10.22
16	21 57 23.29	25.60	−12 27 71.9	59.6	9.711	+51.82	+14 16.51	16 12.97	1 6.61	21 43 6.77

Note.—For mean time interval of semidiameter passing meridian, subtract $0^{s}.19$ from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Feb. 16	21 57 23.29	25.60	−12 27 71.9	59.6	9.711	+51.82	+14 16.51	16 12.97	1 6.61	21 43 6.77
17	22 1 16.01	18.30	12 7 22.3	9.9	9.682	52.31	14 12.67	16 12.76	1 6.51	21 47 3.32
18	22 5 8.04	10.31	11 46 20.9	8.5	9.654	52.79	14 8.13	16 12.55	1 6.41	21 50 59.88
19	22 8 59.40	61.65	11 24 68.5	56.0	9.626	53.24	14 2.92	16 12.33	1 6.31	21 54 56.43
20	22 12 50.09	52.32	11 3 45.3	32.8	9.599	53.68	13 57.05	16 12.10	1 6.21	21 58 52.98
21	22 16 40.13	42.34	−10 41 71.7	59.2	9.572	+54.11	+13 50.53	16 11.87	1 6.11	22 2 49.54
22	22 20 29.51	31.69	10 20 28.1	15.7	9.545	54.51	13 43.37	16 11.65	1 6.02	22 6 46.09
23	22 24 18.26	20.41	9 58 34.9	22.5	9.518	54.90	13 35.57	16 11.42	1 5.93	22 10 42.64
24	22 28 6.40	8.53	9 36 32.7	20.3	9.493	55.27	13 27.14	16 11.20	1 5.84	22 14 39.20
25	22 31 53.94	56.04	9 14 21.8	9.4	9.468	55.62	13 18.11	16 10.98	1 5.75	22 18 35.75
26	22 35 40.88	42.95	− 8 51 62.6	50.3	9.444	+55.96	+13 8.49	16 10.75	1 5.67	22 22 32.30
27	22 39 27.23	29.26	8 29 35.6	23.4	9.420	56.28	12 58.29	16 10.52	1 5.59	22 26 28.85
28	22 43 13.01	15.01	8 6 61.1	49.0	9.396	56.58	12 47.51	16 10.29	1 5.51	22 30 25.41
Mar. 1	22 46 58.24	60.21	7 44 19.7	7.7	9.373	56.87	12 36.19	16 10.05	1 5.44	22 34 21.96
2	22 50 42.95	44.88	7 21 31.5	19.6	9.352	57.13	12 24.36	16 9.82	1 5.37	22 38 18.51
3	22 54 27.14	29.03	− 6 58 37.2	25.5	9.331	+57.38	+12 12.00	16 9.58	1 5.30	22 42 15.06
4	22 58 10.84	12.70	6 35 37.0	25.5	9.311	57.62	11 59.13	16 9.34	1 5.23	22 46 11.62
5	23 1 54.05	55.87	6 12 31.5	20.2	9.291	57.83	11 45.78	16 9.10	1 5.16	22 50 8.17
6	23 5 36.81	38.61	5 49 21.0	9.9	9.272	58.04	11 31.99	16 8.85	1 5.10	22 54 4.72
7	23 9 19.13	20.88	5 25 65.7	54.8	9.254	58.23	11 17.76	16 8.60	1 5.04	22 58 1.27
8	23 13 1.03	2.74	− 5 2 46.1	35.4	9.238	+58.39	+11 3.10	16 8.36	1 4.98	23 1 57.83
9	23 16 42.54	44.20	4 39 22.7	12.2	9.222	58.55	10 48.06	16 8.10	1 4.92	23 5 54.38
10	23 20 23.68	25.30	4 15 55.8	45.5	9.207	58.69	10 32.65	16 7.84	1 4.87	23 9 50.93
11	23 24 4.48	6.06	3 52 25.7	15.7	9.193	58.81	10 16.90	16 7.57	1 4.82	23 13 47.48
12	23 27 44.96	46.50	3 28 52.7	42.9	9.180	58.92	10 0.82	16 7.30	1 4.77	23 17 44.04
13	23 31 25.15	26.64	− 3 5 17.3	7.8	9.169	+59.02	+ 9 44.46	16 7.03	1 4.72	23 21 40.59
14	23 35 5.07	6.52	2 41 39.7	30.4	9.158	59.10	9 27.82	16 6.77	1 4.68	23 25 37.14
15	23 38 44.73	46.13	2 17 60.3	51.3	9.148	59.17	9 10.93	16 6.50	1 4.64	23 29 33.69
16	23 42 24.18	25.54	1 54 19.6	10.9	9.139	59.22	8 53.84	16 6.23	1 4.61	23 33 30.24
17	23 46 3.43	4.74	1 30 37.9	29.5	9.132	59.25	8 36.54	16 5.95	1 4.58	23 37 26.80
18	23 49 42.49	43.76	− 1 6 55.4	47.2	9.125	+59.27	+ 8 19.05	16 5.67	1 4.56	23 41 23.35
19	23 53 21.38	22.60	0 43 12.6	4.7	9.118	59.28	8 1.39	16 5.39	1 4.53	23 45 19.90
20	23 57 0.13	1.31	− 0 19 30.0	22.4	9.112	59.27	7 43.60	16 5.12	1 4.51	23 49 16.45
21	0 0 38.76	39.89	+ 0 4 12.4	19.7	9.107	59.24	7 25.68	16 4.84	1 4.49	23 53 13.00
22	0 4 17.28	18.37	0 27 54.0	61.0	9.103	59.20	7 7.64	16 4.56	1 4.47	23 57 9.56
23	0 7 55.70	56.74	+ 0 51 34.3	41.0	9.099	+59.15	+ 6 49.51	16 4.28	1 4.46	0 1 6.11
24	0 11 34.06	35.06	1 15 13.0	19.4	9.096	59.07	6 31.32	16 4.01	1 4.45	0 5 2.66
25	0 15 12.35	13.31	1 38 49.9	56.0	9.095	58.99	6 13.06	16 3.73	1 4.44	0 8 59.21
26	0 18 50.60	51.51	2 2 24.5	30.3	9.094	58.88	5 54.76	16 3.46	1 4.44	0 12 55.76
27	0 22 28.83	29.69	2 25 56.4	61.8	9.093	58.76	5 36.44	16 3.18	1 4.44	0 16 52.32
28	0 26 7.05	7.85	+ 2 49 25.3	30.4	9.093	+58.63	+ 5 18.12	16 2.91	1 4.44	0 20 48.87
29	0 29 45.27	46.02	3 12 50.7	55.4	9.094	58.49	4 59.79	16 2.64	1 4.44	0 24 45.42
30	0 33 23.53	24.24	3 36 12.4	16.9	9.095	58.32	4 41.50	16 2.37	1 4.45	0 28 41.97
31	0 37 1.83	2.49	3 59 29.9	34.1	9.098	58.14	4 23.25	16 2.10	1 4.46	0 32 38.52
Apr. 1	0 40 40.19	40.81	4 22 43.0	46.9	9.101	57.95	4 5.06	16 1.82	1 4.47	0 36 35.08
2	0 44 18.64	19.21	+ 4 45 51.2	54.8	9.105	+57.73	+ 3 46.97	16 1.55	1 4.48	0 40 31.63
3	0 47 57.19	57.72	+ 5 8 54.1	57.4	9.109	+57.51	+ 3 28.98	16 1.28	1 4.50	0 44 28.18

NOTE.—For mean time interval of semidiameter passing meridian, subtract $0^s.18$ from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.		Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
		Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Decli-nation.				
		h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Apr.	1	0 40 40.19	40.81	+ 4 22 43.0	46.9	9.101	+ 57.95	+ 4 5.06	16 1.82	1 4.47	0 36 35.08
	2	0 44 18.64	19.21	4 45 51.2	54.8	9.105	57.73	3 46.97	16 1.55	1 4.48	0 40 31.63
	3	0 47 57.19	57.72	5 8 54.1	57.4	9.109	57.51	3 28.98	16 1.28	1 4.50	0 44 28.18
	4	0 51 35.87	36.35	5 31 51.6	54.6	9.114	57.27	3 11.11	16 1.02	1 4.52	0 48 24.73
	5	0 55 14.68	15.11	5 54 43.2	45.9	9.121	57.01	2 53.37	16 0.75	1 4.54	0 52 21.28
	6	0 58 53.65	54.04	+ 6 17 28.5	30.9	9.128	+ 56.75	+ 2 35.78	16 0.48	1 4.57	0 56 17.84
	7	1 2 32.81	33.16	6 40 7.3	9.5	9.136	56.47	2 18.39	16 0.20	1 4.61	1 0 14.39
	8	1 6 12.17	12.48	7 2 39.2	41.1	9.145	56.18	2 1.22	15 59.93	1 4.65	1 4 10.94
	9	1 9 51.76	52.03	7 25 3.9	5.6	9.155	55.87	1 44.26	15 59.65	1 4.69	1 8 7.49
	10	1 13 31.60	31.82	7 47 21.1	22.5	9.166	55.55	1 27.53	15 59.38	1 4.73	1 12 4.05
	11	1 17 11.71	11.89	+ 8 9 30.4	31.5	9.178	+ 55.22	+ 1 11.10	15 59.11	1 4.77	1 16 0.60
	12	1 21 52.12	52.26	8 31 31.5	32.3	9.190	54.86	0 54.97	15 58.84	1 4.81	1 19 57.15
	13	1 24 32.84	32.94	8 53 24.2	24.8	9.204	54.50	0 39.14	15 58.56	1 4.85	1 23 53.70
	14	1 28 13.90	13.96	9 15 8.2	8.5	9.218	54.13	0 23.64	15 58.28	1 4.90	1 27 50.26
	15	1 31 55.30	55.32	9 36 43.0	43.1	9.233	53.75	+ 0 8.49	15 58.00	1 4.95	1 31 46.81
	16	1 35 37.07	37.05	+ 9 58 8.5	8.3	9.248	+ 53.35	− 0 6.29	15 57.73	1 5.00	1 35 43.36
	17	1 39 19.21	19.15	10 19 24.2	23.8	9.264	52.94	0 20.71	15 57.46	1 5.05	1 39 39.92
	18	1 43 1.75	1.66	10 40 29.7	29.1	9.281	52.52	0 34.73	15 57.19	1 5.10	1 43 36.47
	19	1 46 44.70	44.57	11 1 24.8	24.0	9.298	52.07	0 48.32	15 56.92	1 5.16	1 47 33.02
	20	1 50 28.07	27.91	11 22 9.0	8.0	9.316	51.61	1 1.51	15 56.66	1 5.22	1 51 29.58
	21	1 54 11.86	11.66	+ 11 42 42.1	40.9	9.334	+ 51.14	− 1 14.26	15 56.39	1 5.28	1 55 26.13
	22	1 57 56.08	55.85	12 3 3.8	2.5	9.352	50.65	1 26.59	15 56.13	1 5.35	1 59 22.68
	23	2 1 40.76	40.50	12 23 13.5	12.0	9.371	50.15	1 38.47	15 55.88	1 5.41	2 3 19.24
	24	2 5 25.90	25.61	12 43 11.2	9.6	9.390	49.64	1 49.89	15 55.63	1 5.48	2 7 15.79
	25	2 9 11.49	11.17	13 2 56.2	54.5	9.410	49.11	2 0.84	15 55.39	1 5.55	2 11 12.34
	26	2 12 57.56	57.21	+ 13 22 28.4	26.6	9.429	+ 48.57	− 2 11.33	15 55.14	1 5.62	2 15 8.90
	27	2 16 44.11	43.74	13 41 47.5	45.5	9.449	48.01	2 21.32	15 54.89	1 5.69	2 19 5.45
	28	2 20 31.15	30.76	14 0 53.0	51.0	9.470	47.44	2 30.84	15 54.65	1 5.76	2 23 2.00
	29	2 24 18.69	18.27	14 19 44.6	42.5	9.491	46.85	2 39.86	15 54.41	1 5.84	2 26 58.56
	30	2 28 6.73	6.28	14 38 22.1	19.9	9.512	46.26	2 48.37	15 54.17	1 5.92	2 30 55.11
May	1	2 31 55.28	54.81	+ 14 56 45.2	43.0	9.533	+ 45.65	− 2 56.38	15 53.94	1 6.00	2 34 51.67
	2	2 35 44.33	43.83	15 14 53.1	50.8	9.555	45.02	3 3.87	15 53.71	1 6.08	2 38 48.22
	3	2 39 33.91	33.39	15 32 45.9	43.5	9.577	44.38	3 10.85	15 53.48	1 6.17	2 42 44.77
	4	2 43 24.03	23.49	15 50 23.2	20.8	9.599	43.73	3 17.30	15 53.25	1 6.25	2 46 41.33
	5	2 47 14.68	14.13	16 7 44.7	42.3	9.622	43.06	3 23.19	15 53.03	1 6.33	2 50 37.88
	6	2 51 5.88	5.31	+ 16 24 50.2	47.7	9.645	+ 42.38	− 3 28.55	15 52.80	1 6.41	2 54 34.44
	7	2 54 57.64	57.07	16 41 39.2	36.7	9.668	41.69	3 33.34	15 52.58	1 6.49	2 58 30.99
	8	2 58 49.95	49.37	16 58 11.6	9.1	9.692	40.99	3 37.59	15 52.36	1 6.57	3 2 27.55
	9	3 2 42.84	42.25	17 14 27.0	24.5	9.716	40.29	3 41.25	15 52.14	1 6.65	3 6 24.10
	10	3 6 36.31	35.71	17 30 25.3	22.9	9.740	39.56	3 44.35	15 51.93	1 6.73	3 10 20.66
	11	3 10 30.35	29.74	+ 17 46 5.9	3.5	9.764	+ 38.82	− 3 46.85	15 51.73	1 6.81	3 14 17.21
	12	3 14 25.00	24.38	18 1 28.7	26.3	9.788	38.07	3 48.78	15 51.52	1 6.89	3 18 13.77
	13	3 18 20.23	19.61	18 16 33.5	31.1	9.813	37.34	3 50.10	15 51.30	1 6.97	3 22 10.32
	14	3 22 16.07	15.44	18 31 20.0	17.7	9.838	36.57	3 50.82	15 51.09	1 7.05	3 26 6.88
	15	3 26 12.48	11.85	18 45 47.8	45.5	9.863	35.79	3 50.95	15 50.88	1 7.13	3 30 3.43
	16	3 30 9.50	8.87	+ 18 59 56.9	54.7	9.888	+ 34.98	− 3 50.50	15 50.67	1 7.21	3 33 59.99
	17	3 34 7.09	6.46	+ 19 13 46.6	44.4	9.912	+ 34.16	− 3 49.47	15 50.47	1 7.29	3 37 56.54

NOTE.—For mean time interval of semidiameter passing meridian, subtract $0^s.18$ from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Decli-nation.				
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
May 17	3 34 7.09	6.46	+19 13 46.6	44.4	9.912	+34.16	−3 49.47	15 50.47	1 7.29	3 37 56.54
18	3 38 5.27	4.65	19 27 17.0	14.9	9.936	33.34	3 47.85	15 50.28	1 7.37	3 41 53.10
19	3 42 4.02	3.40	19 40 27.6	25.6	9.960	32.52	3 45.65	15 50.09	1 7.45	3 45 49.65
20	3 46 3.33	2.72	19 53 18.3	16.4	9.983	31.69	3 42.90	15 49.91	1 7.53	3 49 46.21
21	3 50 3.20	2.59	20 5 48.5	46.6	10.006	30.84	3 39.59	15 49.73	1 7.60	3 53 42.77
22	3 54 3.60	3.01	+20 17 58.3	56.5	10.029	+29.97	−3 35.73	15 49.53	1 7.68	3 57 39.32
23	3 58 4.55	3.97	20 29 47.3	45.6	10.050	29.10	3 31.34	15 49.36	1 7.75	4 1 35.88
24	4 2 6.02	5.44	20 41 15.3	13.7	10.071	28.22	3 26.42	15 49.19	1 7.82	4 5 32.43
25	4 6 8.00	7.44	20 52 21.9	20.4	10.092	27.33	3 21.00	15 49.03	1 7.90	4 9 28.99
26	4 10 10.48	9.94	21 3 7.1	5.7	10.113	26.43	3 15.09	15 48.87	1 7.97	4 13 25.55
27	4 14 13.43	12.90	+21 13 30.5	29.2	10.133	+25.51	−3 8.69	15 48.71	1 8.04	4 17 22.10
28	4 18 16.85	16.34	21 23 31.8	30.6	10.152	24.59	3 1.83	15 48.56	1 8.10	4 21 18.66
29	4 22 20.72	20.23	21 33 11.0	9.9	10.170	23.66	2 54.53	15 48.42	1 8.17	4 25 15.22
30	4 26 25.03	24.55	21 42 27.7	26.7	10.188	22.72	2 46.79	15 48.28	1 8.23	4 29 11.77
31	4 30 29.75	29.30	21 51 21.7	20.8	10.205	21.78	2 38.61	15 48.14	1 8.29	4 33 8.33
June 1	4 34 34.88	34.46	+21 59 53.0	52.1	10.221	+20.82	−2 30.02	15 48.00	1 8.36	4 37 4.88
2	4 38 40.39	39.99	22 8 1.3	0.5	10.237	19.85	2 21.06	15 47.87	1 8.42	4 41 1.44
3	4 42 46.28	45.91	22 15 46.3	45.5	10.253	18.89	2 11.73	15 47.74	1 8.48	4 44 58.00
4	4 46 52.53	52.17	22 23 8.0	7.4	10.268	17.91	2 2.04	15 47.61	1 8.53	4 48 54.56
5	4 50 59.12	58.80	22 30 6.2	5.7	10.282	16.93	1 52.00	15 47.49	1 8.58	4 52 51.11
6	4 55 6.05	5.76	+22 36 40.8	40.4	10.295	+15.95	−1 41.63	15 47.37	1 8.62	4 56 47.67
7	4 59 13.30	13.04	22 42 51.6	51.2	10.308	14.96	1 30.93	15 47.26	1 8.66	5 0 44.22
8	5 3 20.85	20.62	22 48 38.5	38.2	10.321	13.96	1 19.95	15 47.15	1 8.70	5 4 40.78
9	5 7 28.69	28.49	22 54 1.5	1.3	10.332	12.95	1 8.67	15 47.04	1 8.74	5 8 37.34
10	5 11 36.80	36.64	22 59 0.3	0.2	10.343	11.94	0 57.11	15 46.93	1 8.77	5 12 33.90
11	5 15 45.17	45.05	+23 3 34.9	34.8	10.354	+10.93	−0 45.29	15 46.82	1 8.80	5 16 30.45
12	5 19 53.78	53.69	23 7 45.3	45.2	10.363	9.92	0 33.23	15 46.72	1 8.83	5 20 27.01
13	5 24 2.61	2.56	23 11 31.2	31.2	10.372	8.90	0 20.95	15 46.62	1 8.85	5 24 23.56
14	5 28 11.63	11.61	23 14 52.6	52.6	10.379	7.88	−0 8.49	15 46.52	1 8.87	5 28 20.12
15	5 32 20.81	20.82	23 17 49.6	49.6	10.386	6.86	+0 4.13	15 46.43	1 8.89	5 32 16.68
16	5 36 30.15	30.20	+23 20 21.8	21.8	10.392	+ 5.83	+0 16.91	15 46.34	1 8.91	5 36 13.24
17	5 40 39.61	39.70	23 22 29.5	29.5	10.396	4.80	0 29.83	15 46.27	1 8.92	5 40 9.79
18	5 44 49.16	49.28	23 24 12.3	12.3	10.399	3.77	0 42.83	15 46.20	1 8.93	5 44 6.35
19	5 48 58.78	58.94	23 25 30.5	30.5	10.401	2.74	0 55.89	15 46.13	1 8.94	5 48 2.91
20	5 53 8.45	8.65	23 26 23.9	23.9	10.403	1.71	1 9.01	15 46.07	1 8.95	5 51 59.46
21	5 57 18.13	18.37	+23 26 52.5	52.5	10.403	+ 0.68	+1 22.13	15 46.01	1 8.95	5 55 56.02
22	6 1 27.80	28.08	23 26 56.3	56.3	10.402	− 0.36	1 35.24	15 45.96	1 8.94	5 59 52.58
23	6 5 37.44	37.75	23 26 35.3	35.3	10.400	1.39	1 48.32	15 45.91	1 8.94	6 3 49.14
24	6 9 47.01	47.36	23 25 49.5	49.4	10.397	2.42	2 1.33	15 45.87	1 8.93	6 7 45.69
25	6 13 56.47	56.86	23 24 38.9	38.8	10.392	3.46	2 14.24	15 45.83	1 8.92	6 11 42.25
26	6 18 5.82	6.24	+23 23 3.6	3.4	10.386	− 4.49	+2 27.04	15 45.80	1 8.90	6 15 38.81
27	6 22 15.03	15.49	23 21 3.6	3.4	10.379	5.51	2 39.70	15 45.77	1 8.88	6 19 35.36
28	6 26 24.06	24.56	23 18 38.9	38.6	10.372	6.54	2 52.18	15 45.75	1 8.85	6 23 31.92
29	6 30 32.89	33.42	23 15 49.7	49.3	10.363	7.56	3 4.45	15 45.74	1 8.83	6 27 28.48
30	6 34 41.51	42.07	23 12 36.1	35.6	10.354	8.58	3 16.51	15 45.73	1 8.80	6 31 25.04
July 1	6 38 49.88	50.48	+23 8 58.0	57.5	10.344	− 9.60	+3 28.33	15 45.72	1 8.77	6 35 21.59
2	6 42 58.00	58.63	+23 4 55.6	55.0	10.332	−10.61	+3 39.88	15 45.71	1 8.74	6 39 18.15

Note.—For mean time interval of semidiameter passing meridian, subtract $0^s.19$ from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
July 1	6 38 49.88	50.48	+23 8 58.0	57.5	10.344	− 9.60	+ 3 28.33	15 45.72	1 8.77	6 35 21.59
2	6 42 58.00	58.63	23 4 55.6	55.0	10.332	10.61	3 39.88	15 45.71	1 8.74	6 39 18.15
3	6 47 5.83	6.50	23 0 29.0	28.3	10.320	11.61	3 51.16	15 45.71	1 8.70	6 43 14.70
4	6 51 13.35	14.05	22 55 38.3	37.5	10.307	12.61	4 2.13	15 45.71	1 8.66	6 47 11.26
5	6 55 20.56	21.29	22 50 23.7	22.8	10.294	13.60	4 12.78	15 45.72	1 8.61	6 51 7.82
6	6 59 27.44	28.19	+22 44 45.2	44.1	10.280	−14.59	+ 4 23.10	15 45.73	1 8.56	6 55 4.38
7	7 3 33.98	34.77	22 38 43.0	41.8	10.265	15.58	4 33.10	15 45.74	1 8.51	6 59 0.93
8	7 7 40.16	40.99	22 32 17.3	16.0	10.250	16.56	4 42.72	15 45.75	1 8.46	7 2 57.49
9	7 11 45.98	46.82	22 25 28.1	26.7	10.235	17.53	4 51.98	15 45.77	1 8.40	7 6 54.05
10	7 15 51.40	52.26	22 18 15.7	14.2	10.218	18.50	5 0.85	15 45.80	1 8.34	7 10 50.60
11	7 19 56.44	57.32	+22 10 40.3	38.6	10.201	−19.45	+ 5 9.32	15 45.83	1 8.28	7 14 47.16
12	7 24 1.05	1.95	22 2 41.9	40.1	10.183	20.40	5 17.37	15 45.86	1 8.22	7 18 43.72
13	7 28 5.24	6.16	21 54 20.9	19.0	10.165	21.35	5 25.01	15 45.89	1 8.16	7 22 40.27
14	7 32 8.97	9.91	21 45 37.3	35.3	10.146	22.29	5 32.18	15 45.93	1 8.10	7 26 36.83
15	7 36 12.24	13.20	21 36 31.3	29.1	10.127	23.21	5 38.88	15 45.97	1 8.03	7 30 33.39
16	7 40 15.04	16.01	+21 27 3.3	1.0	10.107	−24.12	+ 5 45.13	15 46.02	1 7.96	7 34 29.94
17	7 44 17.34	18.32	21 17 13.3	10.9	10.086	25.03	5 50.87	15 46.07	1 7.89	7 38 26.50
18	7 48 19.13	20.12	21 6 61.6	59.1	10.064	25.93	5 56.11	15 46.13	1 7.81	7 42 23.05
19	7 52 20.41	21.41	20 56 28.4	25.8	10.042	26.82	6 0.83	15 46.19	1 7.73	7 46 19.61
20	7 56 21.15	22.16	20 45 34.1	31.3	10.019	27.70	6 5.01	15 46.25	1 7.65	7 50 16.17
21	8 0 21.35	22.37	+20 34 18.7	15.8	9.996	−28.58	+ 6 8.65	15 46.33	1 7.57	7 54 12.72
22	8 4 20.98	22.01	20 22 42.5	39.4	9.973	29.43	6 11.72	15 46.41	1 7.49	7 58 9.28
23	8 8 20.05	21.08	20 10 45.9	42.7	9.949	30.28	6 14.24	15 46.50	1 7.41	8 2 5.83
24	8 12 18.52	19.55	19 58 29.0	25.7	9.925	31.12	6 16.16	15 46.59	1 7.33	8 6 2.39
25	8 16 16.40	17.44	19 45 52.0	48.6	9.900	31.95	6 17.48	15 46.69	1 7.24	8 9 58.94
26	8 20 13.68	14.72	+19 32 55.4	51.9	9.874	−32.76	+ 6 18.20	15 46.79	1 7.16	8 13 55.50
27	8 24 10.35	11.39	19 19 39.3	35.8	9.848	33.57	6 18.30	15 46.89	1 7.08	8 17 52.06
28	8 28 6.40	7.44	19 6 4.0	0.4	9.822	34.37	6 17.80	15 47.00	1 6.99	8 21 48.61
29	8 32 1.83	2.87	18 52 9.9	6.2	9.796	35.14	6 16.66	15 47.12	1 6.90	8 25 45.17
30	8 35 56.63	57.65	18 37 57.3	53.6	9.770	35.91	6 14.92	15 47.24	1 6.82	8 29 41.72
31	8 39 50.82	51.83	+18 23 26.2	22.4	9.744	−36.67	+ 6 12.55	15 47.36	1 6.73	8 33 38.28
Aug. 1	8 43 44.37	45.37	18 8 37.0	33.2	9.719	37.42	6 9.55	15 47.48	1 6.65	8 37 34.83
2	8 47 37.31	38.30	17 53 30.2	26.4	9.693	38.15	6 5.93	15 47.61	1 6.57	8 41 31.39
3	8 51 29.64	30.62	17 38 5.9	2.0	9.668	38.87	6 1.69	15 47.74	1 6.48	8 45 27.94
4	8 55 21.35	22.31	17 22 24.3	20.4	9.643	39.58	5 56.84	15 47.88	1 6.39	8 49 24.50
5	8 59 12.47	13.41	+17 6 25.9	21.9	9.618	−40.28	+ 5 51.40	15 48.01	1 6.30	8 53 21.05
6	9 3 3.00	3.92	16 50 10.7	6.7	9.593	40.97	5 45.37	15 48.15	1 6.21	8 57 17.61
7	9 6 52.93	53.83	16 33 39.3	35.4	9.569	41.64	5 38.76	15 48.29	1 6.12	9 1 14.16
8	9 10 42.30	43.18	16 16 51.8	47.9	9.545	42.31	5 31.56	15 48.43	1 6.04	9 5 10.72
9	9 14 31.09	31.95	15 59 48.5	44.6	9.521	42.96	5 23.80	15 48.58	1 5.95	9 9 7.27
10	9 18 19.31	20.14	+15 42 29.7	25.8	9.498	−43.59	+ 5 15.46	15 48.73	1 5.87	9 13 3.83
11	9 22 6.98	7.78	15 24 55.8	52.0	9.475	44.22	5 6.58	15 48.88	1 5.79	9 17 0.38
12	9 25 54.10	54.88	15 7 7.0	3.3	9.452	44.84	4 57.15	15 49.04	1 5.71	9 20 56.94
13	9 29 40.68	41.43	14 49 3.7	0.1	9.429	45.44	4 47.17	15 49.21	1 5.63	9 24 53.49
14	9 33 26.71	27.43	14 30 46.1	42.6	9.407	46.02	4 36.65	15 49.38	1 5.55	9 28 50.04
15	9 37 12.22	12.91	+14 12 14.5	11.1	9.385	−46.60	+ 4 25.60	15 49.54	1 5.47	9 32 46.60
16	9 40 57.20	57.86	+13 53 29.3	26.0	9.363	−47.16	+ 4 14.03	15 49.71	1 5.39	9 36 43.15

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0^{s}.19 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Aug. 16	9 40 57.20	57.86	+ 13 53 29.3	26.0	9.363	−47.16	+ 4 14.03	15 49.71	1 5.39	9 36 43.15
17	9 44 41.68	42.31	13 34 30.9	27.7	9.342	47.71	4 1.96	15 49.89	1 5.32	9 40 39.71
18	9 48 25.64	26.24	13 15 19.5	16.4	9.322	48.24	3 49.37	15 50.07	1 5.24	9 44 36.26
19	9 52 9.11	9.67	12 55 55.3	52.4	9.301	48.76	3 36.29	15 50.26	1 5.17	9 48 32.81
20	9 55 52.09	52.61	12 36 18.9	16.1	9.281	49.27	3 22.70	15 50.45	1 5.10	9 52 29.37
21	9 59 34.58	35.06	+ 12 16 30.4	27.8	9.261	−49.76	+ 3 8.64	15 50.64	1 5.03	9 56 25.92
22	10 3 16.60	17.04	11 56 30.2	27.8	9.241	50.24	2 54.10	15 50.84	1 4.97	10 0 22.48
23	10 6 58.15	58.55	11 36 18.9	16.8	9.222	50.71	2 39.10	15 51.04	1 4.90	10 4 19.03
24	10 10 39.24	39.60	11 15 56.4	54.4	9.203	51.15	2 23.64	15 51.25	1 4.84	10 8 15.58
25	10 14 19.88	20.20	10 55 23.3	21.6	9.184	51.59	2 7.74	15 51.47	1 4.77	10 12 12.14
26	10 18 0.09	0.37	+ 10 34 39.8	38.3	9.166	−52.02	+ 1 51.40	15 51.68	1 4.71	10 16 8.69
27	10 21 39.88	40.12	10 13 46.4	45.1	9.150	52.43	1 34.64	15 51.90	1 4.65	10 20 5.24
28	10 25 19.27	19.47	9 52 43.2	42.1	9.134	52.82	1 17.47	15 52.12	1 4.59	10 24 1.79
29	10 28 58.27	58.42	9 31 30.7	29.9	9.118	53.21	0 59.92	15 52.35	1 4.54	10 27 58.35
30	10 32 36.90	37.00	9 10 9.2	8.7	9.103	53.58	0 42.00	15 52.58	1 4.49	10 31 54.90
31	10 36 15.18	15.22	+ 8 48 39.0	38.8	9.088	−53.93	+ 0 23.73	15 52.80	1 4.44	10 35 51.45
Sept. 1	10 39 53.13	53.14	8 27 0.4	0.4	9.074	54.28	+ 0 5.12	15 53.03	1 4.39	10 39 48.01
2	10 43 30.77	30.73	8 5 13.6	13.8	9.062	54.61	− 0 13.78	15 53.26	1 4.35	10 43 44.56
3	10 47 8.11	8.03	7 43 19.1	19.6	9.051	54.93	0 32.98	15 53.50	1 4.31	10 47 41.11
4	10 50 45.19	45.06	7 21 17.0	17.8	9.040	55.23	0 52.45	15 53.73	1 4.27	10 51 37.66
5	10 54 22.02	21.84	+ 6 59 7.8	8.9	9.030	−55.53	− 1 12.17	15 53.96	1 4.23	10 55 34.22
6	10 57 58.63	58.40	6 36 51.6	53.0	9.021	55.81	1 32.11	15 54.19	1 4.19	10 59 30.77
7	11 1 35.04	34.76	6 14 29.0	30.7	9.014	56.08	1 52.24	15 54.43	1 4.16	11 3 27.32
8	11 5 11.26	10.94	5 52 0.0	1.9	9.007	56.33	2 12.57	15 54.67	1 4.14	11 7 23.87
9	11 8 47.31	46.94	5 29 25.2	27.6	9.001	56.57	2 33.07	15 54.91	1 4.11	11 11 20.43
10	11 12 23.22	22.80	+ 5 6 44.6	47.3	8.994	−56.80	− 2 53.71	15 55.15	1 4.09	11 15 16.98
11	11 15 59.01	58.52	4 43 58.8	61.9	8.989	57.01	3 14.46	15 55.40	1 4.07	11 19 13.53
12	11 19 34.69	34.15	4 21 8.1	11.4	8.985	57.21	3 35.33	15 55.65	1 4.05	11 23 10.08
13	11 23 10.27	9.68	3 58 12.6	16.4	8.981	57.40	3 56.30	15 55.90	1 4.04	11 27 6.64
14	11 26 45.79	45.15	3 35 12.8	16.9	8.979	57.57	4 17.34	15 56.15	1 4.03	11 31 3.19
15	11 30 21.26	20.60	+ 3 12 9.1	13.6	8.977	−57.73	− 4 38.41	15 56.40	1 4.02	11 34 59.74
16	11 33 56.68	55.93	2 49 1.7	6.5	8.976	57.88	4 59.53	15 56.66	1 4.01	11 38 56.29
17	11 37 32.10	31.30	2 25 51.1	56.3	8.975	58.01	5 20.66	15 56.92	1 4.01	11 42 52.84
18	11 41 7.51	6.66	2 2 37.5	43.0	8.975	58.12	5 41.81	15 57.18	1 4.01	11 46 49.40
19	11 44 42.92	42.01	1 39 21.3	27.1	8.976	58.22	6 2.93	15 57.44	1 4.01	11 50 45.95
20	11 48 18.37	17.41	+ 1 16 2.8	9.0	8.978	−58.30	− 6 24.03	15 57.71	1 4.02	11 54 42.50
21	11 51 53.88	52.87	0 52 42.6	49.2	8.981	58.37	6 45.08	15 57.98	1 4.03	11 58 39.05
22	11 55 29.43	28.36	0 29 20.7	27.6	8.984	58.43	7 6.07	15 58.25	1 4.04	12 2 35.60
23	11 59 5.06	3.93	+ 0 5 57.8	65.1	8.987	58.47	7 26.99	15 58.53	1 4.06	12 6 32.16
24	12 2 40.79	39.61	− 0 17 25.9	18.3	8.991	58.49	7 47.81	15 58.80	1 4.08	12 10 28.71
25	12 6 16.64	15.42	− 0 40 50.0	42.0	8.996	−58.51	− 8 8.50	15 59.08	1 4.10	12 14 25.26
26	12 9 52.63	51.36	1 4 14.3	6.0	9.002	58.51	8 29.06	15 59.36	1 4.13	12 18 21.81
27	12 13 28.77	27.44	1 27 38.4	29.8	9.010	58.48	8 49.47	15 59.64	1 4.16	12 22 18.37
28	12 17 5.10	3.72	1 50 61.7	52.8	9.018	58.45	9 9.70	15 59.91	1 4.19	12 26 14.92
29	12 20 41.63	40.20	2 14 24.2	15.0	9.027	58.41	9 29.71	16 0.19	1 4.22	12 30 11.47
30	12 24 18.38	16.90	− 2 37 45.4	35.8	9.037	−58.35	− 9 49.49	16 0.37	1 4.26	12 34 8.02
Oct. 1	12 27 55.41	53.88	− 3 0 65.0	55.1	9.049	−58.27	− 10 9.03	16 0.75	1 4.30	12 38 4.58

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0^{s}.18 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.		Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
		Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Decli-nation.				
		h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Oct.	1	12 27 55.41	53.88	− 3 0 65.0	55.1	9.049	−58.27	−10 9.03	16 0.75	1 4.30	12 38 4.58
	2	12 31 32.70	31.12	3 24 22.6	12.4	9.061	58.19	10 28.29	16 1.03	1 4.34	12 42 1.13
	3	12 35 10.29	8.66	3 47 37.9	27.4	9.073	58.09	10 47.26	16 1.30	1 4.39	12 45 57.68
	4	12 38 48.21	46.53	4 10 50.6	39.8	9.087	57.97	11 5.89	16 1.58	1 4.44	12 49 54.23
	5	12 42 26.48	24.75	4 33 60.4	49.4	9.102	57.84	11 24.17	16 1.85	1 4.49	12 53 50.78
	6	12 46 5.12	3.34	− 4 56 66.8	55.5	9.118	−57.70	−11 42.09	16 2.13	1 4.54	12 57 47.34
	7	12 49 44.15	42.32	5 19 69.6	58.1	9.135	57.53	11 59.60	16 2.40	1 4.60	13 1 43.89
	8	12 53 23.59	21.71	5 42 68.5	56.8	9.153	57.36	12 16.71	16 2.67	1 4.66	13 5 40.44
	9	12 57 3.47	1.55	6 5 63.0	51.0	9.171	57.17	12 33.38	16 2.94	1 4.72	13 9 36.99
	10	13 0 43.81	41.85	6 28 52.8	40.6	9.190	56.97	12 49.60	16 3.21	1 4.79	13 13 33.55
	11	13 4 24.63	22.63	− 6 51 37.6	25.3	9.210	−56.75	−13 5.34	16 3.48	1 4.86	13 17 30.10
	12	13 8 5.94	3.89	7 14 16.9	4.3	9.232	56.52	13 20.58	16 3.75	1 4.93	13 21 26.65
	13	13 11 47.76	45.66	7 36 50.3	37.5	9.254	56.26	13 35.31	16 4.02	1 5.01	13 25 23.20
	14	13 15 30.11	27.97	7 59 17.6	4.7	9.276	56.00	13 49.52	16 4.29	1 5.09	13 29 19.76
	15	13 19 13.01	10.83	8 21 38.2	25.2	9.299	55.72	14 3.18	16 4.56	1 5.17	13 33 16.31
	16	13 22 56.47	54.25	− 8 43 51.9	38.7	9.323	−55.41	−14 16.28	16 4.84	1 5.25	13 37 12.86
	17	13 26 40.51	38.25	9 5 58.3	45.0	9.347	55.10	14 28.80	16 5.11	1 5.33	13 41 9.41
	18	13 30 25.14	22.84	9 27 56.8	43.4	9.372	54.77	14 40.73	16 5.39	1 5.42	13 45 5.97
	19	13 34 10.37	8.03	9 49 47.1	33.6	9.397	54.41	14 52.06	16 5.66	1 5.51	13 49 2.52
	20	13 37 56.20	53.83	10 11 28.7	15.2	9.423	54.08	15 2.78	16 5.93	1 5.60	13 52 59.07
	21	13 41 42.65	40.25	−10 32 61.5	47.9	9.449	−53.66	−15 12.88	16 6.20	1 5.69	13 56 55.63
	22	13 45 29.75	27.33	10 54 24.7	11.1	9.476	53.26	15 22.34	16 6.48	1 5.78	14 0 52.18
	23	13 49 17.50	15.04	11 15 38.1	24.4	9.503	52.84	15 31.16	16 6.75	1 5.88	14 4 48.74
	24	13 53 5.91	3.42	11 36 41.2	27.5	9.531	52.40	15 39.31	16 7.02	1 5.98	14 8 45.29
	25	13 56 55.00	52.48	11 57 33.5	19.9	9.560	51.95	15 46.78	16 7.29	1 6.09	14 12 41.84
	26	14 0 44.79	42.24	−12 18 14.9	1.3	9.589	−51.48	−15 53.55	16 7.56	1 6.19	14 16 38.40
	27	14 4 35.28	32.72	12 38 44.6	31.0	9.618	50.99	15 59.62	16 7.83	1 6.30	14 20 34.95
	28	14 8 26.49	23.90	12 58 62.6	49.0	9.649	50.49	16 4.97	16 8.09	1 6.41	14 24 31.50
	29	14 12 18.45	15.84	13 18 68.5	55.0	9.681	49.98	16 9.58	16 8.35	1 6.52	14 28 28.06
	30	14 16 11.17	8.53	13 38 61.8	48.4	9.713	49.44	16 13.43	16 8.60	1 6.63	14 32 24.61
	31	14 20 4.64	1.99	−13 58 41.9	28.6	9.745	−48.90	−16 16.51	16 8.85	1 6.74	14 36 21.16
Nov.	1	14 23 58.91	56.24	14 17 68.7	55.5	9.778	48.33	16 18.80	16 9.11	1 6.85	14 40 17.72
	2	14 27 53.97	51.30	14 37 21.6	8.6	9.811	47.74	16 20.30	16 9.36	1 6.96	14 44 14.27
	3	14 31 49.85	47.17	14 56 20.3	7.4	9.845	47.14	16 21.00	16 9.61	1 7.08	14 48 10.83
	4	14 35 46.54	43.85	15 14 64.6	51.9	9.879	46.53	16 20.86	16 9.85	1 7.20	14 52 7.38
	5	14 39 44.06	41.36	−15 33 33.7	21.2	9.914	−45.89	−16 19.91	16 10.09	1 7.32	14 56 3.94
	6	14 43 42.42	39.72	15 51 47.6	35.2	9.949	45.24	16 18.11	16 10.33	1 7.44	15 0 0.49
	7	14 47 41.63	38.93	16 9 45.7	33.5	9.985	44.59	16 15.47	16 10.56	1 7.56	15 3 57.05
	8	14 51 41.70	38.99	16 27 27.7	15.8	10.021	43.92	16 11.97	16 10.79	1 7.68	15 7 53.60
	9	14 55 42.62	39.91	16 44 53.1	41.5	10.057	43.21	16 7.60	16 11.01	1 7.80	15 11 50.16
	10	14 59 44.41	41.71	−17 1 61.5	50.0	10.093	−42.49	−16 2.38	16 11.23	1 7.91	15 15 46.71
	11	15 3 47.06	44.37	17 18 52.6	41.5	10.129	41.76	15 56.28	16 11.45	1 8.03	15 19 43.26
	12	15 7 50.58	47.90	17 35 25.8	14.9	10.165	41.01	15 49.34	16 11.67	1 8.15	15 23 39.82
	13	15 11 54.96	52.29	17 51 41.0	30.5	10.201	40.24	15 41.52	16 11.89	1 8.27	15 27 36.38
	14	15 15 60.21	57.55	18 7 37.6	27.4	10.237	39.46	15 32.84	16 12.11	1 8.39	15 31 32.93
	15	15 20 6.32	3.68	−18 23 15.2	5.3	10.272	−38.67	−15 23.29	16 12.32	1 8.51	15 35 29.49
	16	15 24 13.28	10.67	−18 38 33.5	23.9	10.307	−37.86	−15 12.90	16 12.53	1 8.63	15 39 26.04

Note.—For mean time interval of semidiameter passing meridian, subtract $0^s.18$ from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Declination.				
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Nov. 16	15 24 13.28	10.67	-- 18 38 33.5	23.9	10.307	− 37.86	− 15 12.90	16 12.53	1 8.63	15 39 26.04
17	15 28 21.08	18.50	18 53 31.9	22.7	10.342	37.01	15 1.66	16 12.74	1 8.74	15 43 22.60
18	15 32 29.69	27.13	19 8 9.9	1.0	10.376	36.16	14 49.62	16 12.95	1 8.86	15 47 19.16
19	15 36 39.14	36.60	19 22 27.5	19.0	10.410	35.29	14 36.73	16 13.16	1 8.97	15 51 15.71
20	15 40 49.39	46.88	19 36 24.1	15.9	10.444	34.41	14 23.04	16 13.36	1 9.09	15 55 12.27
21	15 44 60.44	57.96	− 19 49 59.3	51.4	10.477	− 33.52	− 14 8.55	16 13.56	1 9.20	15 59 8.82
22	15 49 12.27	9.83	20 3 12.8	5.2	10.509	32.60	13 53.27	16 13.76	1 9.31	16 3 5.38
23	15 53 24.87	22.47	20 15 64.1	56.9	10.541	31.67	13 37.23	16 13.95	1 9.42	16 7 1.94
24	15 57 38.24	35.88	20 28 33.0	26.2	10.573	30.73	13 20.41	16 14.14	1 9.53	16 10 58.49
25	16 1 52.38	50.07	20 40 39.0	32.6	10.605	29.77	13 2.84	16 14.33	1 9.64	16 14 55.05
26	16 6 7.25	4.98	− 20 52 21.9	15.9	10.635	− 28.80	− 12 44.53	16 14.51	1 9.74	16 18 51.60
27	16 10 22.86	20.64	21 3 41.2	35.5	10.665	27.81	12 25.49	16 14.69	1 9.84	16 22 48.16
28	16 14 39.17	37.00	21 14 36.7	31.4	10.694	26.81	12 5.74	16 14.86	1 9.94	16 26 44.72
29	16 18 56.19	54.08	21 25 8.3	3.3	10.723	25.80	11 45.28	16 15.03	1 10.04	16 30 41.28
30	16 23 13.90	11.86	21 35 15.5	10.9	10.752	24.78	11 24.11	16 15.19	1 10.13	16 34 37.83
Dec. 1	16 27 32.28	30.31	− 21 44 58.0	53.7	10.780	− 23.75	− 11 2.28	16 15.33	1 10.22	16 38 34.39
2	16 31 51.32	49.41	21 54 15.4	11.4	10.807	22.70	10 39.81	16 15.49	1 10.31	16 42 30.94
3	16 36 10.99	9.14	22 3 7.7	4.0	10.832	21.64	10 16.70	16 15.64	1 10.39	16 46 27.50
4	16 40 31.27	29.49	22 11 34.5	31.1	10.857	20.57	9 52.97	16 15.78	1 10.47	16 50 24.06
5	16 44 52.17	50.46	22 19 35.5	32.4	10.882	19.50	9 28.62	16 15.92	1 10.54	16 54 20.62
6	16 49 13.64	12.00	− 22 27 10.5	7.7	10.906	− 18.41	− 9 3.70	16 16.05	1 10.61	16 58 17.17
7	16 53 35.66	34.10	22 34 19.4	16.9	10.929	17.31	8 38.23	16 16.17	1 10.68	17 2 13.73
8	16 57 58.20	56.71	22 40 61.7	59.5	10.950	16.20	8 12.24	16 16.29	1 10.75	17 6 10.29
9	17 2 21.24	19.83	22 47 17.4	15.5	10.970	15.09	7 45.75	16 16.41	1 10.82	17 10 6.84
10	17 6 44.76	43.42	22 53 6.3	4.7	10.989	13.97	7 18.79	16 16.51	1 10.88	17 14 3.40
11	17 11 8.72	7.46	− 22 58 28.2	26.8	11.007	− 12.84	− 6 51.38	16 16.61	1 10.94	17 17 59.96
12	17 15 33.10	31.93	23 3 22.7	21.5	11.023	11.70	6 23.55	16 16.72	1 10.99	17 21 56.52
13	17 19 57.85	56.77	23 7 49.8	48.8	11.039	10.55	5 55.34	16 16.82	1 11.04	17 25 53.07
14	17 24 22.95	21.95	23 11 49.4	48.6	11.053	9.40	5 26.79	16 16.92	1 11.08	17 29 49.63
15	17 28 48.36	47.45	23 15 21.4	20.8	11.064	8.25	4 57.93	16 17.01	1 11.12	17 33 46.19
16	17 33 14.05	13.23	− 23 18 25.5	25.0	11.075	− 7.09	− 4 28.79	16 17.10	1 11.15	17 37 42.75
17	17 37 39.95	39.22	23 21 1.6	1.2	11.083	5.92	3 59.42	16 17.19	1 11.18	17 41 39.30
18	17 42 6.05	5.41	23 23 9.7	9.4	11.090	4.75	3 29.88	16 17.26	1 11.20	17 45 35.86
19	17 46 32.30	31.75	23 24 49.5	49.3	11.096	3.57	3 0.18	16 17.34	1 11.22	17 49 32.42
20	17 50 58.68	58.22	23 26 1.1	1.0	11.101	2.40	2 30.36	16 17.41	1 11.24	17 53 28.98
21	17 55 25.13	24.76	− 23 26 44.5	44.5	11.103	− 1.22	− 2 0.45	16 17.48	1 11.25	17 57 25.54
22	17 59 51.62	51.34	23 26 59.6	59.6	11.104	− 0.04	1 30.49	16 17.55	1 11.26	18 1 22.09
23	18 4 18.12	17.94	23 26 46.5	46.5	11.104	+ 1.14	1 0.54	16 17.62	1 11.26	18 5 18.65
24	18 8 44.62	44.53	23 26 4.9	4.9	11.102	2.32	0 30.60	16 17.68	1 11.26	18 9 15.21
25	18 13 11.05	11.05	23 24 55.1	55.1	11.099	3.49	− 0 0.72	16 17.73	1 11.26	18 13 11.77
26	18 17 37.38	37.47	− 23 23 17.1	17.1	11.095	+ 4.67	+ 0 29.08	16 17.77	1 11.25	18 17 8.32
27	18 22 3.59	3.77	23 21 10.8	10.7	11.090	5.85	0 58.76	16 17.81	1 11.23	18 21 4.88
28	18 26 29.67	29.93	23 18 36.4	36.2	11.082	7.02	1 28.28	16 17.84	1 11.21	18 25 1.44
29	18 30 55.57	55.92	23 15 34.0	33.7	11.074	8.19	1 57.63	16 17.86	1 11.17	18 28 58.00
30	18 35 21.26	21.72	23 12 3.5	3.1	11.065	9.35	2 26.76	16 17.88	1 11.14	18 32 54.56
31	18 39 46.71	47.23	− 23 8 5.2	4.7	11.055	+ 10.51	+ 2 55.67	16 17.88	1 11.11	18 36 51.11
32	18 44 11.89	12.52	− 23 3 39.1	38.5	11.044	+ 11.66	+ 3 24.30	16 17.88	1 11.07	18 40 47.67

Note.—For mean time interval of semidiameter passing meridian, subtract $0^{s}.19$ from the sidereal interval.

AT TRANSIT OF MOON'S CENTER OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Center.	Diff. for 1 Hour of Long.	Geocentric Declination of Center.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Jan. 1	5 34.71	1.785	0 17 22.83	117.26	− 1 51 44.6	+624.1	61.82	14 57.5	54 48.0	I. S.
2	6 17.15	1.757	1 3 52.51	115.57	+ 2 16 27.9	613.5	61.36	14 51.0	54 24.2	I. S.
3	6 59.34	1.764	1 50 7.31	116.00	6 16 29.7	583.4	61.45	14 47.6	54 11.8	I. S.
4	7 42.08	1.803	2 36 55.45	118.32	10 0 35.4	533.7	62.04	14 47.2	54 10.2	I. S.
5	8 26.07	1.867	3 24 59.02	122.22	13 20 39.6	462.8	63.02	14 49.5	54 18.7	I. S.
6	9 11.86	1.950	4 14 50.09	127.17	+16 7 47.1	+368.6	64.25	14 54.3	54 36.2	I. S.
7	9 59.71	2.038	5 6 45.85	132.46	18 12 17.1	249.8	65.55	15 0.9	55 0.6	I. S.
8	10 49.60	2.116	6 0 43.55	137.18	19 24 30.9	+107.9	66.69	15 8.9	55 30.1	I. S.
9	11 41.09	2.170	6 56 18.41	140.43	19 36 20.9	− 50.8	67.48	15 17.8	56 2.4	I. S.
10	12 33.50	2.192	7 52 48.29	141.71	18 43 4.0	215.6	67.80	15 26.7	56 35.3	II. S.
11	13 26.04	2.182	8 49 25.46	141.11	+16 44 51.1	−373.2	67.68	15 35.5	57 7.3	II. S.
12	14 18.06	2.151	9 45 31.60	139.28	13 47 10.9	511.0	67.28	15 43.6	57 36.9	II. S.
13	15 9.26	2.117	10 40 48.81	137.21	10 0 1.6	619.3	66.82	15 50.7	58 3.4	II. S.
14	15 59.75	2.094	11 35 23.09	135.85	5 36 29.3	692.2	66.53	15 57.1	58 26.7	II. S.
15	16 49.97	2.095	12 29 40.83	135.92	+ 0 51 26.0	726.4	66.60	16 2.5	58 46.8	II. S.
16	17 40.56	2.127	13 24 21.67	137.80	− 3 59 9.2	−719.5	67.11	16 7.1	59 3.4	II. S.
17	18 32.28	2.187	14 20 9.50	141.46	8 38 22.8	669.2	68.02	16 10.6	59 16.2	II. S.
18	19 25.73	2.269	15 17 41.90	146.38	12 48 30.0	573.8	69.20	16 12.7	59 24.0	II. S.
19	20 21.22	2.354	16 17 17.27	151.47	16 11 31.1	434.2	70.40	16 13.1	59 25.3	II. S.
20	21 18.54	2.416	17 18 42.20	155.22	18 30 55.5	257.5	71.23	16 11.2	59 18.5	II. S.
21	22 16.83	2.431	18 21 5.69	156.14	−19 34 42.1	− 59.4	71.38	16 6.9	59 2.7	II. S.
22	23 14.78	2.388	19 23 8.65	153.50	19 18 30.1	+138.4	70.71	16 0.0	58 37.3	
24	0 11.02	2.292	20 23 28.83	147.75	17 46 59.9	313.9	69.30	15 50.8	58 3.6	
25	1 4.56	2.167	21 21 7.00	140.25	15 12 19.7	452.5	67.46	15 39.9	57 23.8	
26	1 55.03	2.039	22 15 39.96	132.55	11 50 32.7	549.4	65.56	15 28.4	56 41.3	I. S.
27	2 42.59	1.927	23 7 17.64	125.81	− 7 58 3.0	+607.0	63.88	15 16.9	55 59.2	I. S.
28	3 27.77	1.842	23 56 32.28	120.72	− 3 49 25.2	631.2	62.60	15 6.5	55 21.0	I. S.
29	4 11.29	1.790	0 44 7.74	117.58	+ 0 23 18.9	628.4	61.82	14 57.9	54 49.5	I. S.
30	4 53.98	1.772	1 30 52.18	116.47	4 30 22.1	603.4	61.57	14 51.8	54 27.0	I. S.
31	5 36.61	1.786	2 17 33.66	117.31	8 23 25.2	558.6	61.83	14 48.5	54 14.9	I. S.
Feb. 1	6 19.94	1.830	3 4 57.23	119.94	+11 54 44.2	+494.6	62.53	14 48.2	54 13.8	I. S.
2	7 4.62	1.897	3 53 42.10	124.02	14 56 25.1	410.2	63.60	14 51.0	54 24.2	I. S.
3	7 51.15	1.981	4 44 17.72	129.06	17 19 55.9	303.5	64.87	14 56.7	54 45.1	I. S.
4	8 39.76	2.069	5 36 58.82	134.34	18 56 10.4	173.9	66.16	15 5.0	55 15.3	I. S.
5	9 30.37	2.146	6 31 40.66	138.97	19 36 14.5	+ 23.4	67.26	15 15.1	55 52.6	I. S.
6	10 22.57	2.199	7 27 57.81	142.16	+19 12 58.0	−141.4	67.99	15 26.4	56 34.2	I. N.
7	11 15.67	2.221	8 25 9.26	143.48	17 42 49.5	308.7	68.26	15 38.0	57 16.8	I. N.
8	12 8.94	2.214	9 22 30.45	143.05	15 7 34.1	464.3	68.14	15 49.0	57 57.1	I. N. S.
9	13 1.80	2.189	10 19 27.15	141.57	11 34 46.3	594.2	67.79	15 58.4	58 31.6	II. S.
10	13 54.01	2.163	11 15 45.01	139.97	7 17 7.0	687.2	67.43	16 5.7	58 58.2	II. S.
11	14 45.70	2.148	12 11 31.47	139.09	+ 2 30 52.3	−736.4	67.27	16 10.5	59 15.8	II. S.
12	15 37.28	2.154	13 7 11.23	139.48	− 2 25 46.3	739.0	67.43	16 12.7	59 24.1	II. S.
13	16 29.31	2.185	14 3 18.00	141.33	7 14 3.9	694.8	67.95	16 12.9	59 24.6	II. S.
14	17 22.33	2.236	15 0 24.76	144.40	11 35 37.4	605.7	68.74	16 11.1	59 18.2	II. S.
15	18 16.71	2.295	15 58 52.98	147.96	−15 13 11.8	−475.7	69.63	16 8.0	59 6.6	II. S.

AT TRANSIT OF MOON'S CENTER OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Center.	Diff. for 1 Hour of Long.	Geocentric Declination of Center.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Feb. 15	18 16.71	2.295	15 58 52.98	147.96	− 15 13 11.8	− 475.7	69.63	16 8.0	59 6.6	II. S.
16	19 12.44	2.345	16 58 42.19	150.94	17 51 44.8	312.2	70.32	16 3.7	58 50.9	II. S.
17	20 9.03	2.365	17 59 23.98	152.15	19 20 4.9	− 127.1	70.57	15 58.4	58 31.3	II. S.
18	21 5.62	2.343	19 0 5.04	150.79	19 32 43.5	+ 63.3	70.18	15 52.1	58 8.4	II. N.
19	22 1.14	2.277	19 59 41.56	146.84	18 31 8.7	241.2	69.15	15 45.0	57 42.2	II. N.
20	22 54.67	2.180	20 57 18.75	141.04	− 16 23 24.7	+ 392.0	67.66	15 36.9	57 12.7	II. N.
21	23 45.69	2.072	21 52 25.35	134.49	13 22 17.2	507.3	65.98	15 28.2	56 40.8	
23	0 34.15	1.968	22 44 57.02	128.27	9 42 37.2	584.8	64.39	15 19.2	56 7.6	
24	1 20.32	1.883	23 35 11.46	123.13	5 39 10.4	626.8	63.07	15 10.3	55 35.0	I. S.
25	2 4.74	1.823	0 23 40.41	119.52	− 1 25 17.9	637.8	62.15	15 2.1	55 5.0	I. S.
26	2 48.05	1.791	1 11 2.62	117.60	+ 2 47 30.2	+ 622.2	61.70	14 55.2	54 39.6	I. S.
27	3 30.93	1.787	1 57 59.24	117.39	6 49 25.3	583.9	61.71	14 50.1	54 21.1	I. S.
28	4 14.06	1.811	2 45 10.49	118.80	10 31 51.7	525.1	62.16	14 47.5	54 11.2	I. S.
Mar. 1	4 58.04	1.858	3 33 13.31	121.66	13 46 51.7	446.7	62.97	14 47.4	54 11.1	I. S.
2	5 43.40	1.924	4 22 38.64	125.62	16 26 33.7	348.4	64.05	14 50.4	54 22.1	I. S.
3	6 30.48	2.001	5 13 47.96	130.22	+ 18 22 55.6	+ 229.9	65.25	14 56.4	54 44.0	I. S.
4	7 19.43	2.078	6 6 49.51	134.85	19 27 53.4	+ 91.8	66.42	15 5.4	55 16.9	I. S.
5	8 10.12	2.144	7 1 35.76	138.84	19 34 4.1	− 63.1	67.37	15 16.8	55 58.9	I. N.
6	9 2.17	2.190	7 57 44.19	141.63	18 36 0.6	228.0	68.00	15 30.1	56 47.8	I. N.
7	9 55.07	2.213	8 54 43.07	143.04	16 31 48.1	391.9	68.28	15 44.4	57 40.1	I. N.
8	10 48.28	2.218	9 52 1.24	143.32	+ 13 24 25.6	− 541.4	68.29	15 58.3	58 31.2	I. N.
9	11 41.47	2.214	10 49 17.97	143.05	9 22 33.1	662.1	68.19	16 10.6	59 16.5	I. N.
10	12 34.56	2.212	11 46 28.74	142.94	+ 4 40 17.5	741.4	68.16	16 20.2	59 51.3	II. N. S.
11	13 27.74	2.222	12 43 44.81	143.56	− 0 23 49.6	770.2	68.35	16 25.9	60 12.3	II. S.
12	14 21.37	2.250	13 41 27.81	145.19	5 28 33.3	744.2	68.80	16 27.4	60 18.1	II. S.
13	15 15.83	2.290	14 40 0.65	147.65	− 10 11 57.1	− 664.1	69.47	16 25.2	60 9.7	II. S.
14	16 11.34	2.335	15 39 36.92	150.34	14 13 27.0	536.1	70.19	16 19.6	59 49.2	II. S.
15	17 7.81	2.368	16 40 11.28	152.32	17 15 53.5	371.0	70.71	16 11.7	59 20.4	II. S.
16	18 4.77	2.373	17 41 14.52	152.60	19 7 20.1	− 183.9	70.79	16 2.5	58 46.6	II. S.
17	19 1.39	2.339	18 41 57.50	150.58	19 42 24.6	+ 7.9	70.29	15 52.8	58 10.8	II. N.
18	19 56.74	2.268	19 41 24.39	146.33	− 19 2 38.0	+ 187.8	69.21	15 43.0	57 35.1	II. N.
19	20 50.07	2.172	20 38 49.16	140.56	17 15 28.5	343.2	67.72	15 33.6	57 0.5	II. N.
20	21 40.95	2.068	21 33 46.93	134.25	14 32 23.3	466.6	66.07	15 24.8	56 27.9	II. N.
21	22 29.36	1.969	22 26 16.25	128.32	11 6 44.3	555.8	64.48	15 16.4	55 57.3	II. N.
22	23 15.59	1.887	23 16 34.49	123.42	7 12 7.0	611.8	63.14	15 8.6	55 28.8	
24	0 0.14	1.829	0 5 10.91	119.88	− 3 1 24.6	+ 636.8	62.19	15 1.6	55 3.0	
25	0 43.57	1.795	0 52 40.72	117.87	+ 1 13 37.1	633.9	61.66	14 55.4	54 40.4	
26	1 26.51	1.787	1 39 40.61	117.37	5 22 21.3	605.8	61.57	14 50.4	54 22.0	I. S.
27	2 9.54	1.802	2 26 46.05	118.30	9 15 12.2	554.7	61.87	14 46.9	54 9.1	I. S.
28	2 53.20	1.838	3 14 29.06	120.47	12 43 19.7	482.4	62.52	14 45.2	54 2.8	I. S.
29	3 37.92	1.890	4 3 16.12	123.59	+ 15 38 25.7	+ 389.8	63.43	14 45.8	54 4.9	I. S.
30	4 24.01	1.952	4 53 25.91	127.29	17 52 36.3	278.0	64.47	14 48.9	54 16.2	I. S.
31	5 11.62	2.016	5 45 7.11	131.12	19 18 24.5	148.3	65.50	14 54.7	54 37.8	I. N. S.
Apr. 1	6 0.71	2.073	6 38 17.02	134.61	19 49 10.1	+ 3.3	66.42	15 3.5	55 10.0	I. N.
2	6 51.05	2.119	7 32 42.42	137.37	+ 19 19 38.4	− 152.3	67.11	15 15.0	55 52.2	I. N.

AT TRANSIT OF MOON'S CENTER OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Center.	Diff. for 1 Hour of Long.	Geocentric Declination of Center.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Apr. 2	6 51.05	2.119	7 32 42.42	137.37	+ 19 19 38.4	− 152.3	67.11	15 15.0	55 52.2	I. N.
3	7 42.32	2.151	8 28 3.54	139.26	17 46 50.3	311.6	67.55	15 28.9	56 43.3	I. N.
4	8 34.19	2.170	9 24 0.58	140.41	15 11 1.8	465.6	67.78	15 44.4	57 40.2	I. N.
5	9 26.44	2.184	10 20 20.78	141.25	11 36 35.9	602.7	67.93	16 0.4	58 39.1	I. N.
6	10 19.06	2.203	11 17 3.41	142.37	7 12 46.0	710.4	68.15	16 15.6	59 34.7	I. N.
7	11 12.26	2.233	12 14 20.68	144.23	+ 2 13 56.5	− 775.6	68.57	16 28.2	60 20.8	I. N.
8	12 6.40	2.281	13 12 34.07	147.06	− 3 0 28.6	786.7	69.26	16 36.7	60 52.0	II. N.
9	13 1.84	2.342	14 12 6.56	150.74	8 7 15.1	736.6	70.17	16 40.1	61 4.5	II. N. S.
10	13 58.82	2.406	15 13 11.17	154.58	12 41 35.8	625.4	71.14	16 38.1	60 57.4	II. S.
11	14 57.18	2.453	16 15 38.73	157.43	16 20 34.6	462.2	71.88	16 31.3	60 32.2	II. S.
12	15 56.27	2.463	17 18 50.31	158.05	− 18 46 49.8	− 265.3	72.09	16 20.8	59 53.6	II. S.
13	16 55.02	2.424	18 21 41.70	155.69	19 51 30.3	− 58.3	71.58	16 8.0	59 6.8	II. N.
14	17 52.25	2.338	19 23 1.11	150.51	19 35 7.2	+ 136.7	70.36	15 54.4	58 16.8	II. N.
15	18 46.99	2.221	20 21 51.52	143.50	18 5 53.4	304.0	68.63	15 41.0	57 27.7	II. N.
16	19 38.80	2.096	21 17 44.91	135.97	15 36 35.7	436.4	66.71	15 28.7	56 42.4	II. N.
17	20 27.69	1.981	22 10 43.02	129.04	− 12 21 30.1	+ 533.2	64.88	15 17.8	56 2.4	II. N.
18	21 14.06	1.888	23 1 9.52	123.43	8 34 24.3	597.0	63.34	15 8.4	55 27.9	II. N.
19	21 58.51	1.822	23 49 40.39	119.45	4 27 50.0	631.1	62.21	15 0.6	54 59.4	II. N.
20	22 41.72	1.784	0 36 56.37	117.18	− 0 13 3.4	638.4	61.56	14 54.3	54 36.3	II. N.
21	23 24.35	1.774	1 23 38.11	116.57	+ 3 59 38.3	620.9	61.36	14 49.4	54 18.3	
23	0 7.05	1.788	2 10 23.28	117.42	+ 8 0 35.6	+ 579.9	61.59	14 45.9	54 5.6	
24	0 50.34	1.823	2 57 44.45	119.51	11 40 31.9	516.0	62.18	14 44.0	53 58.2	
25	1 34.65	1.872	3 46 7.10	122.49	14 50 29.6	430.2	63.00	14 43.5	53 56.6	I. S.
26	2 20.26	1.929	4 35 47.40	125.91	17 21 54.1	323.6	63.97	14 44.9	54 1.6	I. S.
27	3 7.24	1.985	5 26 50.41	129.29	19 6 53.0	198.5	64.92	14 48.2	54 14.1	I. N.
28	3 55.48	2.033	6 19 9.65	132.18	+ 19 58 44.2	+ 58.6	65.74	14 53.9	54 34.9	I. N.
29	4 44.73	2.068	7 12 29.11	134.28	19 52 30.1	− 91.1	66.33	15 2.0	55 4.7	I. N.
30	5 34.64	2.089	8 6 28.28	135.52	18 45 29.9	244.1	66.68	15 12.8	55 43.9	I. N.
May 1	6 24.90	2.099	9 0 48.98	136.14	16 37 43.4	393.6	66.85	15 25.8	56 31.8	I. N.
2	7 15.37	2.108	9 55 22.24	136.65	13 32 7.4	531.9	66.96	15 40.8	57 26.8	I. N.
3	8 6.13	2.125	10 50 12.56	137.67	+ 9 34 53.2	− 650.3	67.17	15 56.9	58 26.1	I. N.
4	8 57.49	2.159	11 45 38.86	139.74	+ 4 55 54.4	738.7	67.64	16 13.1	59 25.3	I. N.
5	9 49.95	2.217	12 42 11.68	143.24	− 0 10 34.3	785.6	68.46	16 27.6	60 18.5	I. N.
6	10 44.11	2.300	13 40 26.67	148.22	5 25 25.7	778.7	69.64	16 38.7	60 59.4	I. N.
7	11 40.46	2.398	14 40 53.73	154.11	10 25 2.7	708.3	71.04	16 45.0	61 22.4	I. N.
8	12 39.16	2.491	15 43 41.84	159.70	− 14 43 18.0	− 572.6	72.38	16 45.4	61 24.0	II. N.
9	13 39.74	2.549	16 48 23.38	163.24	17 55 46.5	382.4	73.24	16 40.0	61 4.2	II. N. S.
10	14 41.04	2.546	17 53 48.06	163.09	19 45 8.2	− 161.9	73.27	16 29.6	60 25.9	II. N.
11	15 41.44	2.475	18 58 18.41	158.75	20 5 20.8	+ 58.3	72.30	16 15.6	59 34.8	II. N.
12	16 39.41	2.349	20 0 22.35	151.16	19 2 4.3	252.1	70.54	16 0.0	58 37.4	II. N.
13	17 33.99	2.198	20 59 2.69	142.11	− 16 49 6.3	+ 405.5	68.36	15 44.2	57 39.4	II. N.
14	18 24.96	2.052	21 54 6.17	133.33	13 43 21.9	516.3	66.14	15 29.4	56 45.0	II. N.
15	19 12.69	1.930	22 45 54.16	125.96	10 1 10.0	588.8	64.20	15 16.3	55 57.1	II. N.
16	19 57.85	1.840	23 35 7.93	120.54	5 56 35.7	629.2	62.72	15 5.5	55 17.2	II. N.
17	20 41.27	1.784	0 22 36.43	117.20	− 1 41 24.7	+ 642.6	61.76	14 56.8	54 45.7	II. N.

AT TRANSIT OF MOON'S CENTER OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Center.	Diff. for 1 Hour of Long.	Geocentric Declination of Center.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
May 17	20 41.27	1.784	0 22 36.43	117.20	− 1 41 24.7	+ 642.6	61.76	14 56.8	54 45.7	II. N.
18	21 23.75	1.762	1 9 9.02	115.85	+ 2 34 19.2	632.3	61.34	14 50.5	54 22.4	II. N.
19	22 6.07	1.769	1 55 31.50	116.30	6 41 26.2	599.7	61.41	14 46.2	54 6.5	II. N.
20	22 48.88	1.802	2 42 23.63	118.26	10 31 4.7	544.8	61.90	14 43.8	53 57.6	II. N.
21	23 32.70	1.853	3 30 16.94	121.33	13 54 19.5	467.6	62.69	14 43.1	53 54.9	
23	0 17.89	1.914	4 19 32.07	124.99	+ 16 42 11.8	+ 368.1	63.66	14 43.9	53 58.0	
24	1 4.55	1.974	5 10 16.13	128.63	18 46 1.5	247.9	64.63	14 46.3	54 7.0	I. N.
25	1 52.56	2.024	6 2 21.35	131.65	19 58 11.3	+ 110.5	65.46	14 50.3	54 21.8	I. N.
26	2 41.58	2.057	6 55 26.73	133.59	20 12 59.3	− 37.9	66.03	14 56.1	54 42.8	I. N.
27	3 31.12	2.067	7 49 3.95	134.32	19 27 27.5	189.8	66.27	15 3.6	55 10.5	I. N.
28	4 20.75	2.065	8 42 46.24	134.09	+ 17 41 43.7	− 337.6	66.28	15 13.1	55 45.3	I. N.
29	5 10.18	2.055	9 36 17.20	133.48	14 58 58.1	473.8	66.17	15 24.5	56 27.0	I. N.
30	5 59.43	2.051	10 29 36.73	133.26	11 25 2.8	592.3	66.13	15 37.6	57 14.9	I. N.
31	6 48.78	2.065	11 23 2.47	134.12	7 8 19.4	686.8	66.34	15 51.9	58 7.6	I. N.
June 1	7 38.79	2.107	12 17 7.77	136.63	+ 2 19 48.3	749.9	66.95	16 6.7	59 2.1	I. N.
2	8 30.19	2.185	13 12 36.68	141.11	− 2 46 9.7	− 772.3	68.03	16 20.8	59 53.7	I. N.
3	9 23.76	2.287	14 10 15.99	147.43	7 51 7.4	743.0	69.54	16 32.6	60 37.0	I. N.
4	10 20.10	2.410	15 10 42.36	154.83	12 32 21.7	652.4	71.28	16 40.7	61 6.6	I. N.
5	11 19.36	2.524	16 14 4.14	161.71	16 24 30.9	498.1	72.88	16 43.6	61 17.4	I. N.
6	12 20.89	2.592	17 19 42.72	165.85	19 3 49.1	291.5	73.84	16 40.8	61 7.2	II. N.
7	13 23.20	2.584	18 26 8.11	165.39	− 20 14 15.7	− 59.4	73.77	16 32.6	60 37.0	II. N.
8	14 24.33	2.496	19 31 22.34	160.04	19 52 30.7	+ 163.9	72.56	16 20.0	59 50.8	II. N.
9	15 22.56	2.350	20 33 42.49	151.25	18 8 1.5	351.0	70.52	16 4.7	58 54.8	II. N.
10	16 16.98	2.184	21 32 13.07	141.28	15 18 16.5	489.5	68.13	15 48.5	57 54.9	II. N.
11	17 7.52	2.031	22 26 50.16	132.04	11 42 46.8	580.6	65.82	15 32.5	56 56.7	II. N.
12	17 54.71	1.908	23 18 6.05	124.63	− 7 39 6.4	+ 631.8	63.90	15 18.3	56 4.3	II. N.
13	18 39.39	1.822	0 6 51.01	119.49	− 3 21 31.3	651.4	62.53	15 6.3	55 20.2	II. N.
14	19 22.49	1.775	0 54 0.52	116.68	+ 0 58 39.9	645.7	61.73	14 56.8	54 45.6	II. N.
15	20 4.90	1.764	1 40 28.51	116.01	5 12 6.8	618.1	61.51	14 50.1	54 20.9	II. N.
16	20 47.42	1.784	2 27 3.63	117.22	9 10 24.5	570.0	61.77	14 45.9	54 5.7	II. N.
17	21 30.75	1.830	3 14 27.01	119.96	+ 12 45 16.2	+ 500.8	62.46	14 44.3	53 59.3	II. N.
18	22 15.39	1.892	4 3 9.29	123.71	15 48 6.7	409.7	63.39	14 44.6	54 0.7	II. N.
19	23 1.62	1.960	4 53 27.16	127.80	18 10 7.1	296.7	64.43	14 46.8	54 8.7	
20	23 49.43	2.022	5 45 20.29	131.49	19 42 48.9	163.7	65.37	14 50.6	54 22.7	
22	0 38.53	2.065	6 38 30.52	134.11	20 19 9.0	+ 16.0	66.05	14 55.7	54 41.4	
23	1 28.37	2.084	7 32 25.82	135.24	+ 19 54 43.1	− 138.6	66.36	15 2.0	55 4.6	I. N.
24	2 18.35	2.078	8 26 29.61	134.87	18 28 40.7	290.4	66.32	15 9.5	55 32.0	I. N.
25	3 7.99	2.056	9 20 12.26	133.57	16 3 59.9	430.4	66.05	15 18.0	56 3.3	I. N.
26	3 57.04	2.033	10 13 20.34	132.14	12 46 56.4	551.2	65.75	15 27.7	56 38.8	I. N.
27	4 45.64	2.020	11 6 0.77	131.41	8 46 18.2	647.5	65.60	15 38.3	57 17.6	I. N.
28	5 34.21	2.032	11 58 39.67	132.12	+ 4 12 50.0	− 714.6	65.81	15 49.6	57 59.5	I. N.
29	6 23.45	2.076	12 51 58.25	134.77	− 0 40 49.5	747.4	66.50	16 1.4	58 42.6	I. N.
30	7 14.17	2.156	13 46 46.57	139.59	5 39 39.3	739.1	67.70	16 12.8	59 24.4	I. N.
July 1	8 7.22	2.268	14 43 54.53	146.32	10 25 36.3	681.6	69.33	16 22.8	60 1.1	I. N.
2	9 3.18	2.396	15 43 58.32	154.03	− 14 37 27.3	− 567.9	71.14	16 30.2	60 28.2	I. N.

AT TRANSIT OF MOON'S CENTER OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Center.	Diff. for 1 Hour of Long.	Geocentric Declination of Center.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
July 2	9 3.18	2.396	15 43 58.32	154.03	− 14 37 27.3	− 567.9	71.14	16 30.2	60 28.2	I. N.
3	10 2.14	2.511	16 47 1.78	160.94	17 52 22.4	397.8	72.73	16 33.9	60 41.7	I. N.
4	11 3.31	2.575	17 52 19.04	164.80	19 49 49.1	− 184.0	73.59	16 33.0	60 38.5	I. N.
5	12 5.12	2.560	18 58 14.04	163.91	20 17 20.1	+ 46.4	73.38	16 27.4	60 17.9	I. II. N.
6	13 5.58	2.466	20 2 48.41	158.24	19 14 50.8	260.8	72.06	16 17.4	59 41.5	II. N.
7	14 3.09	2.321	21 4 24.75	149.45	− 16 54 16.4	+ 433.9	69.98	16 4.4	58 53.5	II. N.
8	14 56.84	2.160	22 2 15.21	139.78	13 34 38.3	555.6	67.66	15 49.6	57 59.2	II. N.
9	15 46.87	2.014	22 56 21.76	131.02	9 36 14.9	628.8	65.49	15 34.5	57 3.8	II. N.
10	16 33.77	1.900	23 47 19.88	124.19	5 16 59.3	661.7	63.74	15 20.4	56 12.1	II. N.
11	17 18.38	1.825	0 36 0.86	119.63	− 0 51 8.3	663.1	62.56	15 8.1	55 27.1	II. N.
12	18 1.65	1.787	1 23 20.29	117.37	+ 3 30 11.2	+ 639.8	61.96	14 58.4	54 51.4	II. N.
13	18 44.44	1.785	2 10 11.67	117.25	7 37 57.4	595.7	61.92	14 51.5	54 26.1	II. N.
14	19 27.57	1.814	2 57 23.08	118.98	11 24 7.7	531.8	62.35	14 47.5	54 11.3	II. N.
15	20 11.70	1.867	3 45 34.38	122.17	14 40 48.0	448.0	63.14	14 46.2	54 6.8	II. N.
16	20 57.29	1.934	4 35 13.89	126.24	17 19 46.0	343.3	64.16	14 47.6	54 11.7	II. N.
17	21 44.56	2.004	5 26 34.42	130.45	+ 19 12 37.1	+ 217.6	65.20	14 51.2	54 24.9	II. N.
18	22 33.41	2.064	6 19 29.97	134.02	20 11 28.4	+ 74.0	66.06	14 56.6	54 44.7	II. N.
19	23 23.43	2.101	7 13 36.05	136.23	20 10 13.0	− 81.5	66.58	15 3.3	55 9.4	
21	0 14.01	2.110	8 8 15.57	136.78	19 5 55.5	239.4	66.71	15 11.0	55 37.7	
22	1 4.50	2.095	9 2 49.93	135.89	16 59 48.7	388.8	66.50	15 19.3	56 7.9	
23	1 54.44	2.066	9 56 51.24	134.18	+ 13 57 21.9	− 519.6	66.10	15 27.7	56 39.1	I. N.
24	2 43.69	2.039	10 50 10.49	132.52	10 7 38.9	624.1	65.74	15 36.3	57 10.4	I. N.
25	3 32.43	2.027	11 42 59.70	131.79	5 42 16.8	697.2	65.61	15 44.7	57 41.3	I. N.
26	4 21.18	2.041	12 35 49.12	132.63	+ 0 54 37.2	735.0	65.88	15 53.0	58 11.6	I. N.
27	5 10.64	2.087	13 29 21.67	135.42	− 4 0 33.5	734.1	66.63	16 0.9	58 40.6	I. N.
28	6 1.62	2.167	14 24 25.41	140.20	− 8 46 56.4	− 690.3	67.86	16 8.2	59 7.2	I. N.
29	6 54.84	2.272	15 21 43.85	146.51	13 6 27.1	599.1	69.41	16 14.3	59 29.7	I. N.
30	7 50.72	2.384	16 21 42.06	153.27	16 39 38.2	458.7	71.01	16 18.7	59 46.0	I. N.
31	8 49.09	2.475	17 24 10.78	158.73	19 7 25.1	273.8	72.25	16 20.7	59 53.4	I. N.
Aug. 1	9 49.07	2.512	18 28 15.79	161.01	20 14 42.4	− 59.8	72.72	16 19.7	59 49.7	I. N. S.
2	10 49.12	2.479	19 32 25.27	159.04	− 19 54 43.0	+ 157.9	72.21	16 15.4	59 33.9	I. S.
3	11 47.58	2.383	20 34 58.86	153.22	18 11 32.0	352.1	70.81	16 7.8	59 5.9	I. S.
4	12 43.20	2.249	21 34 41.84	145.15	15 18 45.6	503.7	68.85	15 57.4	58 28.0	II. N.
5	13 35.47	2.108	22 31 3.16	136.69	11 35 13.2	605.8	66.77	15 45.3	57 43.2	II. N.
6	14 24.54	1.985	23 24 11.73	129.26	7 20 20.7	661.4	64.92	15 32.3	56 55.7	II. N.
7	15 10.98	1.891	0 14 42.46	123.63	− 2 51 18.8	+ 678.0	63.50	15 19.8	56 9.5	II. N.
8	15 55.58	1.832	1 3 22.46	120.07	+ 1 37 56.1	663.7	62.61	15 8.4	55 28.1	II. N.
9	16 39.18	1.807	1 51 2.17	118.59	5 56 21.4	624.7	62.26	14 59.2	54 54.3	II. N.
10	17 22.58	1.814	2 38 29.79	119.03	9 54 55.1	564.8	62.41	14 52.6	54 30.1	II. N.
11	18 6.49	1.849	3 26 28.41	121.12	13 25 39.4	485.7	62.97	14 48.9	54 16.4	II. N.
12	18 51.50	1.904	4 15 32.79	124.43	+ 16 20 54.5	+ 387.4	63.83	14 48.1	54 13.5	II. N.
13	19 37.98	1.970	5 6 6.07	128.41	18 32 56.5	269.6	64.83	14 50.2	54 21.5	II. N.
14	20 26.08	2.036	5 58 15.99	132.36	19 54 6.6	+ 133.3	65.80	14 55.1	54 39.3	II. N.
15	21 15.61	2.089	6 51 52.69	135.52	20 17 35.0	− 18.1	66.54	15 2.2	55 5.2	II. S.
16	22 6.16	2.119	7 46 30.36	137.36	+ 19 38 35.4	− 177.6	66.94	15 10.9	55 37.3	II. S.

AT TRANSIT OF MOON'S CENTER OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Center.	Diff. for 1 Hour of Long.	Geocentric Declination of Center.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Aug. 16	22 6.16	2.119	7 46 30.36	137.36	+ 19 38 35.4	− 177.6	66.94	15 10.9	55 37.3	II. S.
17	22 57.14	2.125	8 41 34.22	137.72	17 55 44.3	335.5	66.99	15 20.8	56 13.3	II. S.
18	23 48.01	2.111	9 36 31.21	136.88	15 11 58.2	480.3	66.75	15 30.8	56 50.2	
20	0 38.41	2.089	10 31 0.52	135.54	11 34 41.2	601.3	66.41	15 40.5	57 25.8	
21	1 28.32	2.072	11 24 59.57	134.50	7 15 12.0	690.0	66.18	15 49.3	57 57.9	I. N.
22	2 17.99	2.071	12 18 44.42	134.46	+ 2 27 45.1	− 740.4	66.22	15 56.6	58 25.1	I. N.
23	3 7.93	2.095	13 12 45.83	135.94	− 2 31 27.0	748.3	66.65	16 2.5	58 46.6	I. N.
24	3 58.80	2.148	14 7 42.63	139.09	7 24 55.3	711.4	67.51	16 6.8	59 2.3	I. N.
25	4 51.22	2.224	15 4 13.07	143.67	11 54 26.1	628.3	68.69	16 9.5	59 12.4	I. N.
26	5 45.64	2.312	16 2 43.98	148.95	15 41 35.8	500.0	70.01	16 10.9	59 17.4	I. N.
27	6 42.12	2.391	17 3 18.22	153.69	− 18 29 2.6	− 331.1	71.16	16 10.8	59 17.0	I. N.
28	7 40.13	2.436	18 5 24.95	156.41	20 2 36.7	− 133.2	71.77	16 9.2	59 11.0	I. N.
29	8 38.62	2.428	19 8 0.54	155.97	20 14 11.3	+ 75.3	71.60	16 5.8	58 58.8	I. S.
30	9 36.26	2.366	20 9 45.02	152.22	19 3 57.6	272.2	70.64	16 0.8	58 40.3	I. S.
31	10 31.88	2.264	21 9 27.76	146.05	16 40 33.9	438.5	69.08	15 53.9	58 15.0	I. S.
Sept. 1	11 24.78	2.144	22 6 27.39	138.88	− 13 18 49.3	+ 562.8	67.27	15 45.4	57 43.8	I. S.
2	12 14.85	2.030	23 0 36.45	132.03	9 16 21.4	642.2	65.52	15 35.6	57 8.0	II. S.
3	13 2.41	1.937	23 52 14.31	126.38	4 50 39.2	679.8	64.08	15 25.3	56 29.9	II. N.
4	13 48.04	1.870	0 41 56.15	122.41	− 0 17 19.2	681.4	63.07	15 15.0	55 52.3	II. N.
5	14 32.44	1.834	1 30 23.93	120.22	+ 4 10 28.5	653.0	62.55	15 5.6	55 17.5	II. N.
6	15 16.32	1.827	2 18 20.32	119.77	+ 8 21 49.7	+ 599.9	62.50	14 57.6	54 48.5	II. N.
7	16 0.33	1.845	3 6 24.95	120.87	12 7 33.6	525.4	62.85	14 51.8	54 27.2	II. N.
8	16 45.04	1.884	3 55 11.68	123.21	15 19 35.0	431.5	63.52	14 48.6	54 15.5	II. N.
9	17 30.88	1.937	4 45 5.79	126.39	17 50 23.2	319.5	64.40	14 48.4	54 14.5	II. N.
10	18 18.07	1.995	5 36 21.27	129.90	19 32 52.8	190.2	65.31	14 51.1	54 24.3	II. N.
11	19 6.61	2.049	6 28 58.63	133.12	+ 20 20 34.4	+ 46.0	66.12	14 56.8	54 45.3	II. S.
12	19 56.31	2.089	7 22 44.94	135.56	20 8 13.6	− 109.0	66.69	15 5.1	55 16.1	II. S.
13	20 46.76	2.112	8 17 17.32	136.93	18 52 49.6	267.9	66.97	15 15.8	55 54.9	II. S.
14	21 37.56	2.118	9 12 9.97	137.30	16 34 34.9	421.6	66.99	15 27.8	56 39.3	II. S.
15	22 28.36	2.114	10 7 2.77	137.05	13 17 41.3	559.3	66.88	15 40.5	57 25.6	II. S.
16	23 19.03	2.110	11 1 48.02	136.78	+ 9 10 40.2	− 670.4	66.77	15 52.6	58 10.2	
18	0 9.71	2.116	11 56 33.40	137.15	+ 4 26 14.0	744.8	66.86	16 3.2	58 49.1	
19	1 0.74	2.140	12 51 40.23	138.63	− 0 39 15.6	774.5	67.26	16 11.3	59 19.1	I. N.
20	1 52.63	2.187	13 47 38.57	141.44	5 46 41.1	753.9	68.01	16 16.6	59 38.2	I. N.
21	2 45.88	2.253	14 44 58.96	145.40	10 35 18.3	680.5	69.06	16 18.6	59 45.7	I. N.
22	3 40.84	2.327	15 44 2.15	149.86	− 14 44 20.9	− 556.6	70.21	16 17.8	59 42.5	I. N.
23	4 37.50	2.391	16 44 47.54	153.72	17 54 53.7	389.7	71.19	16 14.5	59 30.6	I. N.
24	5 35.36	2.424	17 46 45.30	155.69	19 52 14.0	− 193.4	71.69	16 9.4	59 12.0	I. N.
25	6 33.47	2.410	18 48 57.82	154.84	20 28 12.4	+ 13.7	71.48	16 3.1	58 48.7	I. S.
26	7 30.64	2.347	19 50 14.44	151.09	19 42 36.3	211.2	70.54	15 56.0	58 22.6	I. S.
27	8 25.87	2.250	20 49 33.41	145.23	− 17 42 46.6	+ 382.5	69.05	15 48.4	57 54.6	I. S.
28	9 18.53	2.138	21 46 18.43	138.49	14 41 32.2	517.1	67.31	15 40.4	57 25.3	I. S.
29	10 8.53	2.031	22 40 23.09	132.04	10 54 27.1	611.5	65.61	15 32.1	56 55.0	I. S.
30	10 56.15	1.942	23 32 4.83	126.68	6 37 33.8	666.5	64.17	15 23.7	56 24.1	I. S.
Oct. 1	11 41.93	1.877	0 21 55.57	122.83	− 2 6 0.9	+ 685.5	63.13	15 15.2	55 53.1	I. S.

AT TRANSIT OF MOON'S CENTER OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Center.	Diff. for 1 Hour of Long.	Geocentric Declination of Center.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Oct. 1	11 41.93	1.877	0 21 55.57	122.83	− 2 6 0.9	+ 685.5	63.13	15 15.2	55 53.1	I. S.
2	12 26.50	1.841	1 10 33.64	120.62	+ 2 26 33.1	672.3	62.56	15 7.2	55 23.5	II. S.
3	13 10.51	1.830	1 58 37.88	119.98	6 48 5.8	631.0	62.43	14 59.9	54 56.6	II. N.
4	13 54.55	1.843	2 46 44.11	120.74	10 48 3.4	565.0	62.69	14 53.7	54 33.9	II. N.
5	14 39.12	1.874	3 35 22.41	122.60	14 17 6.3	476.9	63.25	14 49.2	54 17.4	II. N.
6	15 24.59	1.917	4 24 54.87	125.19	+ 17 6 57.7	+ 369.4	64.01	14 46.8	54 8.6	II. N.
7	16 11.17	1.965	5 15 33.67	128.06	19 10 17.5	244.7	64.82	14 46.9	54 9.0	II. N.
8	16 58.87	2.009	6 7 19.86	130.74	20 20 49.0	+ 105.8	65.56	14 49.8	54 19.8	II. S.
9	17 47.53	2.044	7 0 4.11	132.83	20 33 37.1	− 43.3	66.13	14 55.8	54 41.5	II. S.
10	18 36.88	2.066	7 53 29.80	134.17	19 45 33.8	197.5	66.47	15 4.6	55 13.9	II. S.
11	19 26.62	2.077	8 47 18.80	134.81	+ 17 55 51.1	− 350.4	66.59	15 16.1	55 56.2	II. S.
12	20 16.52	2.082	9 41 17.86	135.09	15 6 28.1	494.5	66.61	15 29.7	56 46.2	II. S.
13	21 6.55	2.089	10 35 24.20	135.52	11 22 37.9	621.0	66.65	15 44.5	57 40.7	II. S.
14	21 56.87	2.107	11 29 48.07	136.64	6 53 15.9	720.3	66.88	15 59.5	58 35.5	II. S.
15	22 47.85	2.145	12 24 52.19	138.94	+ 1 51 26.0	781.5	67.41	16 13.1	59 25.3	
16	23 40.03	2.206	13 21 7.80	142.62	− 3 25 24.9	− 793.7	68.31	16 23.9	60 5.0	
18	0 33.93	2.288	14 19 7.29	147.53	8 35 50.8	748.2	69.54	16 30.7	60 30.1	
19	1 29.93	2.379	15 19 13.04	152.97	13 15 51.2	641.6	70.90	16 32.9	60 38.2	I. N.
20	2 28.01	2.457	16 21 23.70	157.66	17 1 39.4	479.0	72.09	16 30.5	60 29.4	I. N.
21	3 27.55	2.497	17 25 2.88	160.08	19 33 34.9	275.7	72.73	16 24.2	60 6.2	I. N.
22	4 27.40	2.480	18 29 0.22	159.06	− 20 39 56.3	− 55.5	72.55	16 15.1	59 32.7	I. S.
23	5 26.12	2.405	19 31 49.67	154.53	20 19 12.3	+ 155.8	71.50	16 4.3	58 53.1	I. S.
24	6 22.49	2.288	20 32 17.81	147.54	18 39 10.8	338.4	69.80	15 52.9	58 11.4	I. S.
25	7 15.85	2.157	21 29 44.23	139.65	15 53 42.5	482.0	67.82	15 41.7	57 30.3	I. S.
26	8 6.11	2.034	22 24 5.03	132.26	12 18 57.8	584.9	65.88	15 31.2	56 51.7	I. S.
27	8 53.68	1.934	23 15 43.71	126.25	− 8 10 51.0	+ 649.6	64.25	15 21.7	56 16.6	I. S.
28	9 39.20	1.864	0 5 18.92	122.01	− 3 43 52.2	679.9	63.06	15 13.0	55 45.0	I. S.
29	10 23.40	1.824	0 53 34.66	119.62	+ 0 49 1.4	679.6	62.37	15 5.4	55 17.1	I. S.
30	11 7.00	1.813	1 41 14.19	118.96	5 16 7.9	651.4	62.16	14 58.8	54 52.8	I. S.
31	11 50.64	1.827	2 28 56.25	119.78	9 26 41.3	597.2	62.37	14 53.2	54 32.4	II. S.
Nov. 1	12 34.84	1.859	3 17 12.33	121.74	+ 13 10 39.5	+ 518.7	62.92	14 48.9	54 16.2	II. S.
2	13 19.98	1.903	4 6 24.36	124.36	16 18 44.1	418.1	63.65	14 45.8	54 5.2	II. N. S.
3	14 6.21	1.949	4 56 42.51	127.15	18 42 32.9	298.0	64.45	14 44.5	54 0.3	II. N. S.
4	14 53.50	1.990	5 48 4.39	129.58	20 15 2.8	162.3	65.16	14 45.2	54 2.8	II. S.
5	15 41.63	2.018	6 40 16.19	131.26	20 50 59.5	+ 16.1	65.67	14 48.2	54 13.8	II. S.
6	16 30.23	2.030	7 32 57.18	132.02	+ 20 27 20.7	− 134.7	65.93	14 53.8	54 34.3	II. S.
7	17 18.98	2.030	8 25 46.41	132.00	19 3 29.8	283.8	65.96	15 2.0	55 4.8	II. S.
8	18 7.63	2.024	9 18 30.07	131.63	16 41 13.9	425.8	65.88	15 13.2	55 45.6	II. S.
9	18 56.17	2.022	10 11 6.93	131.53	13 24 36.9	554.7	65.83	15 26.7	56 35.4	II. S.
10	19 44.82	2.036	11 3 50.77	132.32	9 20 3.2	664.4	66.00	15 42.2	57 32.1	II. S.
11	20 34.06	2.073	11 57 9.79	134.55	+ 4 36 42.2	− 747.1	66.51	15 58.6	58 32.3	II. S.
12	21 24.54	2.140	12 51 43.51	138.59	− 0 32 42.8	792.7	67.48	16 14.6	59 30.9	II. S.
13	22 17.02	2.238	13 48 16.97	144.50	5 50 54.9	788.9	68.90	16 28.4	60 21.8	II. S.
14	23 12.15	2.359	14 47 30.57	151.79	10 55 40.3	723.7	70.65	16 38.5	60 58.6	
16	0 10.28	2.483	15 49 44.35	159.23	− 15 20 56.5	− 591.2	72.43	16 43.4	61 16.5	

AT TRANSIT OF MOON'S CENTER OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Center.	Diff. for 1 Hour of Long.	Geocentric Declination of Center.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Nov. 16	0 10.28	2.483	15 49 44.35	159.23	− 15 20 56.5	− 591.2	72.43	16 43.4	61 16.5	
17	1 11.07	2.575	16 54 38.55	164.78	18 40 29.3	397.5	73.77	16 42.4	61 13.1	I. S.
18	2 13.35	2.601	18 1 1.80	166.34	20 33 48.9	− 165.1	74.20	16 36.0	60 49.4	I. S.
19	3 15.26	2.544	19 7 3.14	162.94	20 51 57.1	+ 72.4	73.47	16 25.2	60 9.5	I. S.
20	4 14.93	2.420	20 10 50.01	155.44	19 39 27.3	283.6	71.75	16 11.4	59 19.4	I. S.
21	5 11.13	2.262	21 11 7.70	145.90	− 17 11 7.1	+ 449.9	69.47	15 56.7	58 25.2	I. S.
22	6 3.49	2.104	22 7 34.21	136.46	13 46 5.9	567.3	67.12	15 42.1	57 31.6	I. S.
23	6 52.34	1.972	23 0 30.19	128.52	9 43 9.0	640.7	65.05	15 28.6	56 42.1	I. S.
24	7 38.44	1.876	23 50 40.29	122.70	5 18 24.9	677.4	63.47	15 16.7	55 58.7	I. S.
25	8 22.67	1.817	0 38 58.05	119.16	− 0 45 13.8	683.7	62.47	15 6.9	55 22.4	I. S.
26	9 5.92	1.793	1 26 16.76	117.75	+ 3 45 8.1	+ 663.8	62.02	14 58.9	54 53.0	I. S.
27	9 49.00	1.800	2 13 24.65	118.19	8 2 37.1	619.5	62.08	14 52.7	54 30.4	I. S.
28	10 32.56	1.833	3 1 1.94	120.12	11 57 40.1	551.7	62.55	14 48.2	54 13.8	I. S.
29	11 17.09	1.881	3 49 38.10	123.02	15 20 56.8	460.7	63.28	14 45.2	54 3.0	I. S.
30	12 2.88	1.934	4 39 29.10	126.25	18 3 25.8	348.1	64.14	14 43.7	53 57.4	II. S.
Dec. 1	12 49.90	1.983	5 30 35.16	129.15	+ 19 56 57.1	+ 216.6	64.92	14 43.7	53 57.2	II. S.
2	13 37.92	2.015	6 22 40.74	131.12	20 55 0.7	+ 71.9	65.48	14 45.2	54 2.8	II. S.
3	14 26.48	2.027	7 15 18.65	131.81	20 53 37.4	− 79.2	65.72	14 48.5	54 15.0	II. S.
4	15 15.06	2.018	8 7 58.17	131.30	19 51 49.3	228.9	65.66	14 53.7	54 34.1	II. S.
5	16 3.27	1.997	9 0 14.86	130.02	17 51 38.2	370.1	65.40	15 1.1	55 1.3	II. S.
6	16 50.92	1.975	9 51 58.51	128.67	+ 14 57 34.8	− 497.5	65.10	15 10.8	55 36.9	II. S.
7	17 38.16	1.964	10 43 16.86	128.04	11 16 3.6	606.9	64.96	15 22.8	56 20.8	II. S.
8	18 25.39	1.977	11 34 35.57	128.81	6 55 3.7	694.1	65.16	15 36.8	57 12.3	II. S.
9	19 13.32	2.023	12 26 35.49	131.54	+ 2 4 26.2	753.8	65.86	15 52.4	58 9.3	II. S.
10	20 2.79	2.106	13 20 8.37	136.59	− 3 3 14.4	777.7	67.10	16 8.4	59 8.0	II. S.
11	20 54.74	2.229	14 16 10.38	143.93	− 8 11 24.6	− 754.2	68.88	16 23.4	60 3.2	II. S.
12	21 49.98	2.378	15 15 30.45	152.92	12 58 37.1	670.9	71.02	16 35.8	60 48.8	II. S.
13	22 48.88	2.528	16 18 30.94	161.94	16 59 6.9	520.1	73.13	16 43.9	61 18.5	II. S.
14	23 50.98	2.636	17 24 43.52	168.44	19 46 30.0	307.9	74.63	16 46.3	61 27.4	
16	0 54.73	2.660	18 32 35.69	169.89	21 0 39.3	− 59.8	74.98	16 42.6	61 13.7	
17	1 57.87	2.585	19 39 50.70	165.41	− 20 34 51.0	+ 185.0	73.98	16 33.3	60 39.7	I. S.
18	2 58.23	2.436	20 44 19.21	156.43	18 37 51.3	391.5	71.93	16 19.8	59 50.0	I. S.
19	3 54.57	2.258	21 44 45.43	145.68	15 29 11.8	542.1	69.38	16 3.9	58 51.6	I. S.
20	4 46.69	2.089	22 40 57.28	135.55	11 31 39.8	637.0	66.88	15 47.4	57 51.1	I. S.
21	5 35.12	1.954	23 33 27.96	127.40	7 5 54.8	685.0	64.81	15 31.7	56 53.5	I. S.
22	6 20.80	1.860	0 23 12.57	121.75	− 2 28 29.7	+ 696.8	63.31	15 17.7	56 2.2	I. S.
23	7 4.72	1.807	1 11 11.88	118.60	+ 2 7 46.3	680.3	62.44	15 6.1	55 19.6	I. S.
24	7 47.86	1.793	1 58 23.78	117.75	6 32 38.9	640.4	62.15	14 56.9	54 46.1	I. S.
25	8 31.06	1.811	2 45 39.10	118.82	10 37 11.8	578.8	62.39	14 50.4	54 22.0	I. S.
26	9 14.99	1.853	3 33 38.77	121.36	14 12 54.1	496.1	63.00	14 46.2	54 6.6	I. S.
27	10 0.12	1.909	4 22 50.80	124.74	+ 17 11 14.3	+ 392.0	63.84	14 44.2	53 58.9	I. S.
28	10 46.65	1.967	5 13 26.89	128.22	19 23 49.7	267.7	64.70	14 44.0	53 58.2	I. S.
29	11 34.47	2.014	6 5 20.10	131.03	20 43 10.3	+ 126.5	65.40	14 45.3	54 3.3	I. S.
30	12 23.16	2.039	6 58 6.12	132.54	21 3 42.0	− 25.1	65.78	14 48.1	54 13.7	II. S.
31	13 12.14	2.038	7 51 9.59	132.49	+ 20 22 53.2	− 178.6	65.79	14 52.3	54 29.1	II. S.

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Jan. 0	22 26.5	17 7 55.75	−20 36 55.2	9.3	3.5	0.24	Feb. 16	0 4.3	21 47 24.66	−15 32 25.1	6.3	2.4	0.17
1	22 26.0	17 11 20.94	20 49 24.9	9.1	3.4	0.24	17	0 7.3	21 54 21.04	14 55 3.7	6.4	2.4	0.17
2	22 25.7	17 15 5.23	21 2 13.2	9.0	3.4	0.24	18	0 10.3	22 1 17.91	14 16 16.8	6.4	2.4	0.17
3	22 25.8	17 19 6.72	21 15 9.0	8.8	3.4	0.24	19	0 13.3	22 8 15.22	13 36 4.9	6.4	2.4	0.17
4	22 26.1	17 23 23.64	21 28 2.3	8.6	3.3	0.23	20	0 16.3	22 15 12.94	12 54 29.2	6.4	2.4	0.17
5	22 26.7	17 27 54.53	−21 40 44.1	8.5	3.3	0.23	21	0 19.3	22 22 11.03	−12 11 30.6	6.5	2.4	0.17
6	22 27.4	17 32 38.03	21 53 6.6	8.4	3.2	0.23	22	0 22.3	22 29 9.38	11 27 10.8	6.5	2.4	0.17
7	22 28.3	17 37 32.94	22 5 2.8	8.2	3.2	0.23	23	0 25.3	22 36 7.81	10 41 32.1	6.5	2.5	0.17
8	22 29.4	17 42 38.19	22 16 26.2	8.1	3.1	0.22	24	0 28.3	22 43 6.16	9 54 36.7	6.5	2.5	0.17
9	22 30.7	17 47 52.83	22 27 12.0	8.0	3.1	0.22	25	0 31.4	22 50 4.23	9 6 27.9	6.6	2.5	0.17
10	22 32.3	17 53 16.01	−22 37 14.6	7.9	3.0	0.21	26	0 34.4	22 57 1.78	− 8 17 8.9	6.6	2.5	0.17
11	22 34.0	17 58 46.98	22 46 29.8	7.8	3.0	0.21	27	0 37.4	23 3 58.48	7 26 44.4	6.7	2.5	0.17
12	22 35.7	18 4 25.06	22 54 53.5	7.7	3.0	0.21	28	0 40.4	23 10 53.92	6 35 19.8	6.8	2.6	0.17
13	22 37.5	18 10 9.64	23 2 22.1	7.6	2.9	0.21	Mar. 1	0 43.3	23 17 47.63	5 43 1.1	6.8	2.6	0.17
14	22 39.4	18 16 0.14	23 8 53.3	7.5	2.9	0.20	2	0 46.2	23 24 38.99	4 49 56.0	6.9	2.6	0.17
15	22 41.3	18 21 56.14	−23 14 23.5	7.4	2.8	0.20	3	0 49.0	23 31 27.34	− 3 56 11.9	7.0	2.6	0.18
16	22 43.2	18 27 57.17	23 18 50.6	7.3	2.8	0.20	4	0 51.7	23 38 11.93	3 1 59.0	7.1	2.7	0.18
17	22 45.2	18 34 2.76	23 22 11.9	7.2	2.7	0.20	5	0 54.4	23 44 51.84	2 7 28.7	7.2	2.7	0.18
18	22 47.4	18 40 12.59	23 24 25.7	7.2	2.7	0.20	6	0 57.1	23 51 25.93	1 12 52.6	7.3	2.8	0.18
19	22 49.8	18 46 26.40	23 25 29.9	7.1	2.6	0.19	7	0 59.7	23 57 53.01	− 0 18 24.5	7.4	2.8	0.19
20	22 52.3	18 52 43.85	−23 25 23.1	7.0	2.6	0.19	8	1 2.1	0 4 11.88	+ 0 35 40.6	7.5	2.8	0.19
21	22 54.8	18 59 4.63	23 24 3.6	7.0	2.6	0.19	9	1 4.3	0 10 21.09	1 29 7.1	7.7	2.9	0.20
22	22 57.3	19 5 28.49	23 21 29.9	6.9	2.6	0.19	10	1 6.3	0 16 19.04	2 21 38.6	7.8	2.9	0.20
23	22 59.8	19 11 55.10	23 17 40.8	6.9	2.6	0.19	11	1 8.1	0 22 4.11	3 12 57.7	8.0	3.0	0.21
24	23 2.3	19 18 24.30	23 12 35.0	6.8	2.5	0.19	12	1 9.6	0 27 34.70	4 2 46.4	8.2	3.1	0.21
25	23 4.8	19 24 55.91	−23 6 11.6	6.7	2.5	0.19	13	1 10.9	0 32 49.10	+ 4 50 46.7	8.4	3.2	0.22
26	23 7.4	19 31 29.74	22 58 29.6	6.7	2.5	0.19	14	1 11.9	0 37 45.65	5 36 41.5	8.6	3.3	0.22
27	23 10.0	19 38 5.56	22 49 27.9	6.7	2.5	0.18	15	1 12.6	0 42 22.74	6 20 13.9	8.9	3.4	0.23
28	23 12.7	19 44 43.28	22 39 5.7	6.6	2.5	0.18	16	1 12.9	0 46 38.78	7 1 7.8	9.1	3.5	0.23
29	23 15.4	19 51 22.75	22 27 22.4	6.6	2.5	0.18	17	1 12.8	0 50 32.36	7 39 7.9	9.4	3.6	0.24
30	23 18.1	19 58 3.80	−22 14 17.0	6.5	2.5	0.18	18	1 12.4	0 54 2.08	+ 8 13 59.7	9.7	3.7	0.24
31	23 20.8	20 4 46.30	21 59 49.2	6.5	2.5	0.18	19	1 11.5	0 57 6.83	8 45 30.7	10.0	3.8	0.25
Feb. 1	23 23.6	20 11 30.16	21 43 58.0	6.5	2.5	0.18	20	1 10.3	0 59 45.64	9 13 29.0	10.3	3.9	0.26
2	23 26.4	20 18 15.26	21 26 43.0	6.4	2.5	0.18	21	1 8.5	1 1 57.80	9 37 44.1	10.6	4.0	0.27
3	23 29.2	20 25 1.52	21 8 3.7	6.4	2.4	0.18	22	1 6.3	1 3 42.70	9 58 7.1	11.0	4.2	0.28
4	23 32.1	20 31 48.86	−20 47 59.7	6.4	2.4	0.18	23	1 3.7	1 5 0.06	+10 14 30.2	11.3	4.3	0.28
5	23 35.0	20 38 37.21	20 26 30.3	6.4	2.4	0.18	24	1 0.6	1 5 49.97	10 26 47.8	11.6	4.4	0.29
6	23 37.9	20 45 26.50	20 3 35.2	6.4	2.4	0.17	25	0 57.0	1 6 12.70	10 34 55.0	12.0	4.6	0.30
7	23 40.8	20 52 16.67	19 39 14.2	6.4	2.4	0.17	26	0 53.0	1 6 8.90	10 38 49.9	12.3	4.7	0.31
8	23 43.7	20 59 7.66	19 13 26.9	6.3	2.4	0.17	27	0 48.6	1 5 39.63	10 38 32.9	12.7	4.8	0.32
9	23 46.6	21 5 59.42	−18 46 13.0	6.3	2.4	0.17	28	0 43.8	1 4 46.22	+10 34 6.6	13.0	4.9	0.32
10	23 49.5	21 12 51.93	18 17 32.2	6.3	2.4	0.17	29	0 38.6	1 3 30.43	10 25 36.9	13.3	5.0	0.33
11	23 52.4	21 19 45.17	17 47 24.7	6.3	2.4	0.17	30	0 33.1	1 1 54.39	10 13 12.7	13.6	5.1	0.34
12	23 55.3	21 26 39.08	17 15 50.0	6.3	2.4	0.17	31	0 27.3	1 0 0.51	9 57 6.7	13.9	5.2	0.35
13	23 58.3	21 33 33.64	16 42 48.5	6.3	2.4	0.17	Apr. 1	0 21.2	0 57 51.68	9 37 36.0	14.2	5.4	0.36
15	0 1.3	21 40 28.84	−16 8 20.3	6.3	2.4	0.17	2	0 14.9	0 55 30.78	+ 9 15 0.4	14.4	5.5	0.36
16	0 4.3	21 47 24.66	−15 32 25.1	6.3	2.4	0.17	3	0 8.5	0 53 1.02	+ 8 49 43.5	14.6	5.5	0.36

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Apr. 1	0 21.2	0 57 51.68	+ 9 37 36.0	14.2	5.4	0.36	May 15	22 30.5	2 4 11.34	+ 9 43 47.9	8.3	3.2	0.22
2	0 14.9	0 55 30.78	9 15 0.4	14.4	5.5	0.36	16	22 32.4	2 10 0.32	10 20 19.2	8.2	3.2	0.22
3	0 8.5	0 53 1.02	8 49 43.5	14.6	5.5	0.36	17	22 34.5	2 15 58.66	10 57 34.7	8.1	3.1	0.21
4	0 2.0	0 50 25.71	8 22 11.7	14.7	5.6	0.37	18	22 36.7	2 22 6.60	11 35 30.0	8.0	3.1	0.21
4	23 55.5	0 47 48.20	7 52 53.3	14.9	5.6	0.37	19	22 39.0	2 28 24.34	12 14 0.6	7.9	3.0	0.20
5	23 48.9	0 45 11.70	+ 7 22 18.3	15.0	5.7	0.37	20	22 41.4	2 34 52.11	+12 53 1.1	7.8	3.0	0.20
6	23 42.5	0 42 39.26	6 50 58.3	15.0	5.7	0.37	21	22 44.0	2 41 30.14	13 32 26.2	7.7	3.0	0.20
7	23 36.1	0 40 13.81	6 19 23.1	15.0	5.7	0.37	22	22 46.8	2 48 18.71	14 12 10.4	7.6	2.9	0.20
8	23 29.9	0 37 57.84	5 48 1.9	15.0	5.7	0.38	23	22 49.8	2 55 18.05	14 52 7.0	7.5	2.9	0.20
9	23 23.9	0 35 53.60	5 17 22.3	15.0	5.7	0.38	24	22 53.1	3 2 28.42	15 32 9.1	7.4	2.9	0.20
10	23 18.2	0 34 3.03	+ 4 47 49.2	15.0	5.7	0.38	25	22 56.6	3 9 50.02	+16 12 9.5	7.3	2.8	0.19
11	23 12.7	0 32 27.69	4 19 44.4	14.9	5.6	0.38	26	23 0.2	3 17 23.10	16 52 0.3	7.2	2.8	0.19
12	23 7.4	0 31 8.75	3 53 25.8	14.7	5.6	0.37	27	23 4.0	3 25 7.74	17 31 32.5	7.1	2.7	0.19
13	23 2.5	0 30 7.10	3 29 8.9	14.6	5.5	0.37	28	23 8.0	3 33 4.07	18 10 36.9	7.0	2.7	0.19
14	22 57.8	0 29 23.27	3 7 5.9	14.4	5.5	0.36	29	23 12.2	3 41 12.02	18 49 3.2	6.9	2.6	0.19
15	22 53.4	0 28 57.57	+ 2 47 26.1	14.2	5.4	0.36	30	23 16.5	3 49 31.49	+19 26 40.5	6.9	2.6	0.19
16	22 49.4	0 28 50.03	2 30 17.0	14.0	5.4	0.35	31	23 21.0	3 58 2.29	20 3 17.2	6.8	2.6	0.19
17	22 45.6	0 29 0.56	2 15 41.8	13.8	5.3	0.35	June 1	23 25.7	4 6 43.96	20 38 40.8	6.8	2.6	0.19
18	22 42.2	0 29 28.86	2 3 42.9	13.6	5.2	0.34	2	23 30.6	4 15 35.93	21 12 39.2	6.7	2.6	0.19
19	22 39.0	0 30 14.55	1 54 20.5	13.4	5.1	0.34	3	23 35.7	4 24 37.55	21 45 0.4	6.7	2.5	0.19
20	22 36.1	0 31 17.14	+ 1 47 33.7	13.1	5.0	0.33	4	23 41.0	4 33 47.91	+22 15 32.3	6.7	2.5	0.19
21	22 33.5	0 32 36.07	1 43 20.2	12.9	4.9	0.33	5	23 46.4	4 43 5.91	22 44 2.3	6.7	2.5	0.19
22	22 31.1	0 34 10.75	1 41 36.9	12.7	4.8	0.32	6	23 51.9	4 52 30.38	23 10 18.5	6.7	2.5	0.18
23	22 29.0	0 36 0.56	1 42 20.6	12.5	4.7	0.32	7	23 57.4	5 1 59.99	23 34 11.6	6.7	2.5	0.18
24	22 27.2	0 38 4.90	1 45 26.6	12.3	4.6	0.32	9	0 3.0	5 11 33.22	23 55 32.6	6.7	2.5	0.18
25	22 25.5	0 40 23.16	+ 1 50 50.6	12.0	4.5	0.31	10	0 8.6	5 21 8.56	+24 14 14.5	6.7	2.5	0.18
26	22 24.1	0 42 54.70	1 58 27.8	11.8	4.4	0.31	11	0 14.2	5 30 44.37	24 30 11.4	6.7	2.5	0.18
27	22 22.9	0 45 38.99	2 8 13.4	11.6	4.3	0.30	12	0 19.8	5 40 19.10	24 43 19.6	6.7	2.5	0.18
28	22 21.9	0 48 35.49	2 20 2.4	11.4	4.2	0.30	13	0 25.3	5 49 51.20	24 53 37.7	6.8	2.6	0.18
29	22 21.1	0 51 43.66	2 33 50.2	11.1	4.1	0.29	14	0 30.8	5 59 19.20	25 1 5.3	6.8	2.6	0.18
30	22 20.5	0 55 3.05	+ 2 49 32.0	10.9	4.1	0.28	15	0 36.3	6 8 41.77	+25 5 44.5	6.8	2.6	0.19
May 1	22 20.0	0 58 33.26	3 7 2.9	10.7	4.1	0.28	16	0 41.7	6 17 57.66	25 7 38.4	6.9	2.6	0.19
2	22 19.7	1 2 13.93	3 26 18.5	10.5	4.0	0.28	17	0 46.9	6 27 5.79	25 6 51.5	6.9	2.6	0.19
3	22 19.6	1 6 4.66	3 47 14.3	10.3	4.0	0.27	18	0 51.9	6 36 5.15	25 3 29.3	7.0	2.7	0.20
4	22 19.7	1 10 5.17	4 9 45.8	10.1	3.9	0.27	19	0 56.7	6 44 54.96	24 57 38.2	7.0	2.7	0.20
5	22 20.0	1 14 15.19	+ 4 33 49.0	9.9	3.8	0.26	20	1 1.4	6 53 34.55	+24 49 25.1	7.1	2.7	0.20
6	22 20.4	1 18 34.54	4 59 19.7	9.8	3.8	0.26	21	1 5.9	7 2 3.31	24 38 57.7	7.2	2.7	0.20
7	22 21.0	1 23 3.02	5 26 13.9	9.6	3.7	0.25	22	1 10.2	7 10 20.79	24 26 23.6	7.3	2.8	0.20
8	22 21.7	1 27 40.51	5 54 27.5	9.4	3.7	0.25	23	1 14.3	7 18 26.60	24 11 50.7	7.4	2.8	0.20
9	22 22.5	1 32 26.90	6 23 56.8	9.3	3.6	0.24	24	1 18.3	7 26 20.52	23 55 26.9	7.5	2.9	0.21
10	22 23.4	1 37 22.14	+ 6 54 37.9	9.1	3.5	0.23	25	1 22.1	7 34 2.36	+23 37 20.2	7.6	2.9	0.21
11	22 24.5	1 42 26.19	7 26 27.3	8.9	3.4	0.23	26	1 25.7	7 41 31.97	23 17 38.5	7.7	3.0	0.21
12	22 25.8	1 47 39.08	7 59 20.8	8.8	3.4	0.23	27	1 29.1	7 48 49.24	22 56 29.1	7.8	3.0	0.21
13	22 27.2	1 53 0.85	8 33 14.7	8.6	3.3	0.23	28	1 32.2	7 55 54.16	22 33 59.6	7.9	3.1	0.21
14	22 28.8	1 58 31.55	9 8 5.0	8.5	3.3	0.22	29	1 35.1	8 2 46.72	22 10 17.2	8.0	3.1	0.22
15	22 30.5	2 4 11.34	+ 9 43 47.9	8.3	3.2	0.22	30	1 37.8	8 9 26.94	+21 45 28.9	8.1	3.1	0.22
16	22 32.4	2 10 0.32	+10 20 19.2	8.2	3.2	0.22	July 1	1 40.3	8 15 54.80	+21 19 41.5	8.2	3.1	0.22

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
July 1	1 40.3	8 15 54.80	+21 19 41.5	8.2	3.1	0.22	Aug. 15	23 31.4	9 7 57.45	+12 18 7.2	13.7	5.2	0.35
2	1 42.6	8 22 10.33	20 53 1.5	8.3	3.2	0.22	16	23 25.5	9 5 58.59	12 41 23.0	13.4	5.1	0.35
3	1 44.7	8 28 13.55	20 25 35.5	8.4	3.2	0.23	17	23 19.9	9 4 21.60	13 4 10.5	13.2	5.0	0.34
4	1 46.6	8 34 4.51	19 57 29.6	8.5	3.3	0.23	18	23 14.8	9 3 9.07	13 26 9.3	12.9	4.9	0.34
5	1 48.2	8 39 43.26	19 28 49.6	8.7	3.3	0.23	19	23 10.1	9 2 23.09	13 47 0.1	12.5	4.7	0.33
6	1 49.6	8 45 9.80	+18 59 41.4	8.9	3.4	0.24	20	23 5.8	9 2 5.44	+14 6 24.8	12.2	4.6	0.32
7	1 50.9	8 50 24.07	18 30 11.1	9.0	3.4	0.24	21	23 2.1	9 2 17.50	14 24 6.7	11.8	4.5	0.31
8	1 52.0	8 55 26.09	18 0 24.4	9.2	3.5	0.24	22	22 58.9	9 3 0.23	14 39 50.4	11.5	4.4	0.30
9	1 52.9	9 0 15.79	17 30 26.7	9.3	3.6	0.25	23	22 56.2	9 4 14.20	14 53 21.9	11.2	4.3	0.29
10	1 53.6	9 4 53.11	17 0 23.3	9.5	3.6	0.25	24	22 54.0	9 5 59.62	15 4 28.3	10.9	4.1	0.28
11	1 54.1	9 9 17.96	+16 30 20.0	9.6	3.7	0.25	25	22 52.4	9 8 16.39	+15 12 58.1	10.6	4.0	0.27
12	1 54.4	9 13 30.21	16 0 22.4	9.8	3.8	0.26	26	22 51.2	9 11 3.92	15 18 40.6	10.3	3.9	0.26
13	1 54.5	9 17 29.67	15 30 36.1	10.0	3.8	0.26	27	22 50.6	9 14 21.42	15 21 27.2	10.0	3.8	0.25
14	1 54.3	9 21 16.16	15 1 7.0	10.2	3.9	0.27	28	22 50.4	9 18 7.78	15 21 10.5	9.7	3.7	0.25
15	1 53.9	9 24 49.47	14 32 0.2	10.4	3.9	0.27	29	22 50.7	9 22 21.60	15 17 44.6	9.4	3.5	0.24
16	1 53.3	9 28 9.34	+14 3 22.0	10.6	4.0	0.27	30	22 51.4	9 27 1.26	+15 11 5.6	9.1	3.4	0.24
17	1 52.5	9 31 15.44	13 35 18.5	10.8	4.1	0.28	31	22 52.5	9 32 4.94	15 1 11.0	8.9	3.3	0.23
18	1 51.4	9 34 7.47	13 7 55.8	11.0	4.2	0.28	Sept. 1	22 54.0	9 37 30.53	14 48 0.4	8.6	3.2	0.23
19	1 50.1	9 36 45.08	12 41 20.4	11.2	4.2	0.29	2	22 55.8	9 43 15.85	14 31 36.0	8.4	3.1	0.22
20	1 48.5	9 39 7.86	12 15 38.7	11.4	4.3	0.29	3	22 57.9	9 49 18.66	14 12 1.3	8.2	3.0	0.22
21	1 46.7	9 41 15.45	+11 50 57.5	11.6	4.4	0.29	4	23 0.3	9 55 36.64	+13 49 22.4	8.0	3.0	0.21
22	1 44.7	9 43 7.29	11 27 24.1	11.8	4.5	0.30	5	23 2.8	10 2 7.45	13 23 47.0	7.8	2.9	0.21
23	1 42.3	9 44 43.03	11 5 5.7	12.0	4.5	0.30	6	23 5.5	10 8 48.84	12 55 24.2	7.6	2.9	0.20
24	1 39.7	9 46 2.17	10 44 9.7	12.2	4.6	0.31	7	23 8.4	10 15 38.68	12 24 24.5	7.5	2.8	0.19
25	1 36.8	9 47 4.26	10 24 44.0	12.4	4.7	0.32	8	23 11.4	10 22 34.95	11 51 0.1	7.3	2.8	0.19
26	1 33.6	9 47 48.85	+10 6 56.5	12.6	4.8	0.33	9	23 14.5	10 29 35.81	+11 15 23.4	7.2	2.7	0.19
27	1 30.1	9 48 15.54	9 50 55.2	12.8	4.9	0.33	10	23 17.6	10 36 39.64	10 37 47.0	7.1	2.7	0.19
28	1 26.3	9 48 23.99	9 36 48.2	13.0	5.0	0.34	11	23 20.7	10 43 44.95	9 58 23.6	7.0	2.6	0.18
29	1 22.2	9 48 13.89	9 24 42.9	13.2	5.0	0.34	12	23 23.8	10 50 50.54	9 17 25.7	6.9	2.6	0.18
30	1 17.8	9 47 45.13	9 14 47.3	13.5	5.1	0.35	13	23 27.0	10 57 55.31	8 35 5.9	6.8	2.6	0.18
31	1 13.1	9 46 57.64	+ 9 7 8.5	13.7	5.2	0.35	14	23 30.1	11 4 58.46	+ 7 51 35.6	6.7	2.6	0.18
Aug. 1	1 8.0	9 45 51.60	9 1 53.1	13.9	5.3	0.36	15	23 33.1	11 11 59.23	7 7 5.8	6.6	2.5	0.18
2	1 2.7	9 44 27.36	8 59 6.8	14.0	5.3	0.36	16	23 36.1	11 18 57.13	6 21 46.6	6.5	2.5	0.17
3	0 57.1	9 42 45.43	8 58 53.2	14.2	5.4	0.37	17	23 39.1	11 25 51.79	5 35 47.3	6.5	2.5	0.17
4	0 51.2	9 40 46.79	9 1 15.5	14.3	5.4	0.37	18	23 42.0	11 32 42.87	4 49 16.4	6.4	2.5	0.17
5	0 45.1	9 38 32.67	+ 9 6 14.8	14.4	5.5	0.37	19	23 44.8	11 39 30.10	+ 4 2 21.5	6.4	2.5	0.17
6	0 38.7	9 36 4.57	9 13 49.8	14.5	5.5	0.37	20	23 47.6	11 46 13.45	3 15 9.7	6.3	2.4	0.17
7	0 32.1	9 33 24.32	9 23 57.0	14.5	5.6	0.37	21	23 50.3	11 52 52.91	2 27 47.7	6.3	2.4	0.17
8	0 25.3	9 30 34.16	9 36 30.1	14.6	5.6	0.38	22	23 53.0	11 59 28.43	1 40 21.2	6.3	2.4	0.17
9	0 18.4	9 27 36.75	9 51 20.1	14.6	5.6	0.38	23	23 55.5	12 6 0.07	0 52 54.6	6.3	2.4	0.16
10	0 11.5	9 24 34.94	+10 8 15.5	14.5	5.5	0.38	24	23 58.0	12 12 27.98	+ 0 5 32.6	6.3	2.4	0.16
11	0 4.5	9 21 31.85	10 27 2.1	14.5	5.5	0.37	26	0 0.5	12 18 52.26	− 0 41 40.7	6.2	2.4	0.16
11	23 57.6	9 18 30.88	10 47 23.5	14.4	5.4	0.37	27	0 2.9	12 25 13.06	1 28 41.6	6.2	2.4	0.16
12	23 50.7	9 15 35.44	11 9 1.2	14.3	5.4	0.36	28	0 5.2	12 31 30.53	2 15 26.6	6.2	2.4	0.16
13	23 44.1	9 12 49.10	11 31 35.3	14.1	5.4	0.36	29	0 7.5	12 37 44.85	3 1 52.9	6.2	2.4	0.16
14	23 37.6	9 10 15.34	+11 54 44.2	13.9	5.3	0.36	30	0 9.8	12 43 56.20	− 3 47 58.0	6.2	2.4	0.16
15	23 31.4	9 7 57.45	+12 18 7.2	13.7	5.2	0.35	Oct. 1	0 12.0	12 50 4.76	− 4 33 39.6	6.2	2.4	0.16

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Oct. 1	0 12.0	12 50 4.76	− 4 33 39.6	6.2	2.4	0.16	Nov. 16	1 12.6	16 52 19.74	−24 55 38.5	10.0	3.8	0.28
2	0 14.1	12 56 10.71	5 18 55.2	6.2	2.4	0.16	17	1 10.5	16 54 6.22	24 51 3.6	10.3	3.9	0.29
3	0 16.2	13 2 14.23	6 3 42.4	6.2	2.4	0.16	18	1 7.8	16 55 19.57	24 44 15.3	10.5	4.0	0.29
4	0 18.3	13 8 15.51	6 48 0.2	6.2	2.4	0.16	19	1 4.5	16 55 56.58	24 35 6.5	10.8	4.1	0.30
5	0 20.3	13 14 14.74	7 31 46.8	6.2	2.4	0.16	20	1 0.5	16 55 54.16	24 23 29.8	11.1	4.2	0.30
6	0 22.3	13 20 12.08	− 8 15 0.5	6.2	2.4	0.16	21	0 55.8	16 55 9.83	−24 9 18.4	11.4	4.3	0.31
7	0 24.3	13 26 7.69	8 57 39.9	6.3	2.4	0.16	22	0 50.4	16 53 41.52	23 52 25.1	11.7	4.4	0.32
8	0 26.3	13 32 1.73	9 39 43.6	6.3	2.4	0.16	23	0 44.3	16 51 28.25	23 32 45.9	11.9	4.5	0.32
9	0 28.2	13 37 54.34	10 21 9.7	6.3	2.4	0.16	24	0 37.4	16 48 30.38	23 10 20.5	12.1	4.6	0.33
10	0 30.1	13 43 45.66	11 1 57.0	6.3	2.4	0.16	25	0 29.8	16 44 50.30	22 45 12.3	12.3	4.7	0.33
11	0 32.0	13 49 35.82	−11 42 4.7	6.4	2.4	0.16	26	0 21.6	16 40 31.93	−22 17 33.5	12.6	4.8	0.34
12	0 33.9	13 55 24.94	12 21 31.6	6.4	2.4	0.16	27	0 12.8	16 35 41.25	21 47 43.4	12.8	4.9	0.35
13	0 35.7	14 1 13.12	13 0 16.1	6.4	2.4	0.17	28	0 3.7	16 30 26.59	21 16 13.4	12.9	4.9	0.35
14	0 37.6	14 7 0.45	13 38 17.2	6.5	2.4	0.17	28	23 54.3	16 24 57.71	20 43 45.4	12.9	4.9	0.35
15	0 39.4	14 12 47.02	14 15 33.6	6.5	2.4	0.17	29	23 44.9	16 19 25.52	20 11 8.8	13.0	4.9	0.35
16	0 41.2	14 18 32.90	−14 52 4.1	6.5	2.5	0.17	30	23 35.6	16 14 1.05	−19 39 18.1	13.0	4.9	0.34
17	0 43.0	14 24 18.12	15 27 47.3	6.6	2.5	0.17	Dec. 1	23 26.5	16 8 54.80	19 9 10.5	12.9	4.9	0.34
18	0 44.8	14 30 2.72	16 2 42.2	6.6	2.5	0.17	2	23 18.0	16 4 16.02	18 41 37.4	12.6	4.8	0.34
19	0 46.6	14 35 46.72	16 36 47.2	6.6	2.5	0.17	3	23 10.0	16 0 12.08	18 17 21.6	12.3	4.7	0.33
20	0 48.4	14 41 30.10	17 10 1.2	6.7	2.5	0.17	4	23 2.7	15 56 48.29	17 56 56.9	12.0	4.6	0.32
21	0 50.2	14 47 12.85	−17 42 22.8	6.7	2.6	0.18	5	22 56.1	15 54 7.88	−17 40 42.3	11.8	4.5	0.32
22	0 51.9	14 52 54.89	18 13 50.4	6.7	2.6	0.18	6	22 50.2	15 52 12.25	17 28 46.4	11.5	4.4	0.31
23	0 53.6	14 58 36.14	18 44 22.4	6.8	2.6	0.18	7	22 45.1	15 51 1.14	17 21 7.0	11.2	4.3	0.30
24	0 55.3	15 4 16.51	19 13 57.6	6.8	2.6	0.18	8	22 40.7	15 50 33.14	17 17 33.1	10.9	4.2	0.30
25	0 57.0	15 9 55.88	19 42 34.5	6.9	2.6	0.18	9	22 37.0	15 50 46.07	17 17 46.8	10.6	4.1	0.29
26	0 58.7	15 15 34.06	−20 10 11.3	7.0	2.7	0.19	10	22 33.9	15 51 37.12	−17 21 27.9	10.3	4.0	0.28
27	1 0.4	15 21 10.84	20 36 46.3	7.1	2.7	0.19	11	22 31.4	15 53 3.28	17 28 13.1	10.1	3.8	0.27
28	1 2.1	15 26 45.97	21 2 17.6	7.2	2.7	0.19	12	22 29.4	15 55 1.42	17 37 38.7	9.9	3.7	0.26
29	1 3.7	15 32 19.14	21 26 43.6	7.3	2.7	0.20	13	22 27.9	15 57 28.51	17 49 21.3	9.6	3.6	0.26
30	1 5.3	15 37 49.98	21 50 2.3	7.4	2.8	0.20	14	22 26.9	16 0 21.66	18 2 58.6	9.4	3.5	0.25
31	1 6.8	15 43 18.12	−22 12 11.7	7.5	2.8	0.20	15	22 26.2	16 3 38.20	−18 18 9.8	9.1	3.4	0.25
Nov. 1	1 8.3	15 48 43.03	22 33 9.7	7.6	2.9	0.21	16	22 25.9	16 7 15.61	18 34 35.6	8.9	3.4	0.24
2	1 9.7	15 54 4.13	22 52 54.3	7.7	2.9	0.21	17	22 25.9	16 11 11.78	18 51 59.0	8.7	3.3	0.23
3	1 11.0	15 59 20.78	23 11 23.2	7.8	2.9	0.21	18	22 26.2	16 15 24.69	19 10 4.5	8.5	3.3	0.23
4	1 12.2	16 4 32.27	23 28 34.0	7.9	3.0	0.22	19	22 26.7	16 19 52.58	19 28 38.1	8.3	3.2	0.22
5	1 13.3	16 9 37.69	−23 44 24.1	8.0	3.0	0.22	20	22 27.4	16 24 33.91	−19 47 27.5	8.1	3.2	0.22
6	1 14.4	16 14 36.08	23 58 51.0	8.1	3.1	0.23	21	22 28.3	16 29 27.32	20 6 21.8	8.0	3.1	0.22
7	1 15.3	16 19 26.38	24 11 52.3	8.3	3.1	0.23	22	22 29.4	16 34 31.59	20 25 11.6	7.9	3.1	0.22
8	1 16.0	16 24 7.25	24 23 24.9	8.4	3.2	0.23	23	22 30.7	16 39 45.66	20 43 47.8	7.7	3.0	0.21
9	1 16.5	16 28 37.20	24 33 25.8	8.6	3.2	0.24	24	22 32.1	16 45 8.60	21 2 3.3	7.6	3.0	0.21
10	1 16.9	16 32 54.71	−24 41 51.9	8.7	3.3	0.24	25	22 33.7	16 50 39.59	−21 19 51.4	7.5	2.9	0.21
11	1 17.0	16 36 57.91	24 48 39.6	8.9	3.4	0.25	26	22 35.5	16 56 17.94	21 37 6.3	7.4	2.8	0.20
12	1 16.8	16 40 44.79	24 53 45.1	9.1	3.5	0.26	27	22 37.4	17 2 3.02	21 53 42.5	7.3	2.8	0.20
13	1 16.4	16 44 13.04	24 57 4.5	9.3	3.6	0.26	28	22 39.3	17 7 54.29	22 9 35.6	7.2	2.8	0.20
14	1 15.5	16 47 20.12	24 58 33.3	9.5	3.6	0.27	29	22 41.3	17 13 51.25	22 24 41.5	7.1	2.7	0.20
15	1 14.3	16 50 3.31	−24 58 6.3	9.7	3.7	0.27	30	22 43.3	17 19 53.46	−22 38 56.1	7.0	2.7	0.19
16	1 12.6	16 52 19.74	−24 55 38.5	10.0	3.8	0.28	31	22 45.4	17 26 0.51	−22 52 16.2	7.0	2.7	0.19

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Jan. 0	23 17.9	17 59 33.20	−23 26 39.9	5.3	5.1	0.37	Feb. 16	0 18.4	22 1 33.59	−13 33 41.3	5.1	5.0	0.34
1	23 19.5	18 5 2.58	23 28 49.1	5.3	5.1	0.37	17	0 19.3	22 6 24.27	13 8 8.9	5.1	5.0	0.34
2	23 21.1	18 10 32.08	23 30 14.7	5.3	5.1	0.37	18	0 20.2	22 11 13.85	12 42 15.2	5.1	5.0	0.34
3	23 22.6	18 16 1.66	23 30 56.6	5.2	5.1	0.37	19	0 21.1	22 16 2.36	12 16 1.0	5.1	5.0	0.34
4	23 24.1	18 21 31.26	23 30 54.8	5.2	5.1	0.37	20	0 21.9	22 20 49.84	11 49 26.9	5.1	5.0	0.34
5	23 25.6	18 27 0.77	−23 30 9.2	5.2	5.1	0.37	21	0 22.7	22 25 36.30	−11 22 34.0	5.1	5.0	0.34
6	23 27.2	18 32 30.18	23 28 39.8	5.2	5.1	0.37	22	0 23.5	22 30 21.76	10°55 22.9	5.1	5.0	0.34
7	23 28.7	18 37 59.45	23 26 26.7	5.2	5.1	0.37	23	0 24.3	22 35 6.25	10 27 54.4	5.1	5.0	0.34
8	23 30.2	18 43 28.50	23 23 29.8	5.2	5.1	0.37	24	0 25.1	22 39 49.80	10 0 9.2	5.1	5.0	0.34
9	23 31.8	18 48 57.27	23 19 49.1	5.2	5.1	0.37	25	0 25.9	22 44 32.43	9 32 8.3	5.1	5.0	0.34
10	23 33.3	18 54 25.70	−23 15 24.9	5.2	5.1	0.37	26	0 26.7	22 49 14.20	− 9 3 52.3	5.1	5.0	0.34
11	23 34.8	18 59 53.69	23 10 17.7	5.2	5.1	0.37	27	0 27.4	22 53 55.12	8 35 22.0	5.1	5.0	0.34
12	23 36.3	19 5 21.21	23 4 27.6	5.2	5.1	0.37	28	0 28.1	22 58 35.23	8 6 38.0	5.1	5.0	0.34
13	23 37.8	19 10 48.21	22 57 54.6	5.2	5.1	0.37	Mar. 1	0 28.8	23 3 14.56	7 37 41.3	5.1	5.0	0.34
14	23 39.3	19 16 14.65	22 50 39.1	5.2	5.0	0.37	2	0 29.5	23 7 53.14	7 8 32.7	5.1	5.0	0.34
15	23 40.8	19 21 40.47	−22 42 41.5	5.2	5.0	0.37	3	0 30.2	23 12 31.01	− 6 39 12.8	5.1	5.0	0.34
16	23 42.3	19 27 5.61	22 34 2.0	5.2	5.0	0.37	4	0 30.9	23 17 8.21	6 9 42.5	5.1	5.0	0.34
17	23 43.8	19 32 30.03	22 24 40.9	5.2	5.0	0.37	5	0 31.6	23 21 44.79	5 40 2.2	5.1	5.0	0.34
18	23 45.3	19 37 53.66	22 14 38.8	5.2	5.0	0.36	6	0 32.2	23 26 20.79	5 10 12.9	5.1	5.0	0.34
19	23 46.7	19 43 16.46	22 3 56.0	5.2	5.0	0.36	7	0 32.8	23 30 56.24	4 40 15.3	5.1	5.0	0.34
20	23 48.1	19 48 38.38	−21 52 33.0	5.2	5.0	0.36	8	0 33.5	23 35 31.19	− 4 10 10.3	5.2	5.0	0.34
21	23 49.5	19 53 59.39	21 40 30.2	5.2	5.0	0.36	9	0 34.1	23 40 5.67	3 39 58.5	5.2	5.0	0.34
22	23 50.9	19 59 19.46	21 27 48.1	5.2	5.0	0.36	10	0 34.7	23 44 39.74	3 9 40.8	5.2	5.0	0.33
23	23 52.3	20 4 38.52	21 14 27.3	5.2	5.0	0.36	11	0 35.3	23 49 13.42	2 39 17.7	5.2	5.0	0.33
24	23 53.6	20 9 56.54	21 0 28.3	5.2	5.0	0.36	12	0 35.9	23 53 46.78	2 8 50.1	5.2	5.0	0.33
25	23 54.9	20 15 13.49	−20 45 51.7	5.2	5.0	0.36	13	0 36.5	23 58 19.85	− 1 38 18.6	5.2	5.0	0.33
26	23 56.2	20 20 29.35	20 30 38.2	5.2	5.0	0.36	14	0 37.1	0 2 52.67	1 7 44.0	5.2	5.0	0.33
27	23 57.5	20 25 44.07	20 14 48.1	5.2	5.0	0.36	15	0 37.7	0 7 25.30	0 37 6.8	5.2	5.0	0.33
28	23 58.8	20 30 57.65	19 58 22.1	5.2	5.0	0.36	16	0 38.3	0 11 57.77	− 0 6 28.0	5.2	5.0	0.33
30	0 0.1	20 36 10.05	19 41 21.0	5.2	5.0	0.35	17	0 38.9	0 16 30.13	+ 0 24 11.9	5.2	5.0	0.33
31	0 1.3	20 41 21.25	−19 23 45.4	5.2	5.0	0.35	18	0 39.5	0 21 2.43	+ 0 54 52.0	5.2	5.0	0.33
Feb. 1	0 2.5	20 46 31.25	19 5 35.9	5.1	5.0	0.35	19	0 40.1	0 25 34.71	1 25 31.6	5.2	5.0	0.33
2	0 3.7	20 51 40.02	18 46 53.3	5.1	5.0	0.35	20	0 40.7	0 30 7.00	1 56 9.9	5.2	5.0	0.34
3	0 4.9	20 56 47.55	18 27 38.4	5.1	5.0	0.35	21	0 41.3	0 34 39.35	2 26 46.2	5.2	5.0	0.34
4	0 6.1	21 1 53.84	18 7 51.9	5.1	5.0	0.35	22	0 41.9	0 39 11.81	2 57 19.9	5.2	5.0	0.34
5	0 7.3	21 6 58.88	−17 47 34.3	5.1	5.0	0.35	23	0 42.5	0 43 44.41	+ 3 27 50.1	5.2	5.1	0.34
6	0 8.4	21 12 2.68	17 26 46.3	5.1	5.0	0.35	24	0 43.1	0 48 17.19	3 58 16.3	5.2	5.1	0.34
7	0 9.5	21 17 5.24	17 5 28.7	5.1	5.0	0.35	25	0 43.7	0 52 50.18	4 28 37.4	5.2	5.1	0.34
8	0 10.6	21 22 6.56	16 43 42.2	5.1	5.0	0.34	26	0 44.3	0 57 23.45	4 58 52.9	5.2	5.1	0.34
9	0 11.6	21 27 6.63	16 21 27.7	5.1	5.0	0.34	27	0 44.9	1 1 57.00	5 29 2.1	5.2	5.1	0.34
10	0 12.6	21 32 5.48	−15 58 45.7	5.1	5.0	0.34	28	0 45.5	1 6 30.90	+ 5 59 4.2	5.2	5.1	0.34
11	0 13.6	21 37 3.10	15 35 37.1	5.1	5.0	0.34	29	0 46.1	1 11 5.20	6 28 58.3	5.2	5.1	0.34
12	0 14.6	21 41 59.53	15 12 2.6	5.1	5.0	0.34	30	0 46.7	1 15 39.93	6 58 43.8	5.2	5.1	0.34
13	0 15.6	21 46 54.79	14 48 3.1	5.1	5.0	0.34	31	0 47.4	1 20 15.11	7 28 19.9	5.2	5.1	0.34
14	0 16.6	21 51 48.88	14 23 39.2	5.1	5.0	0.34	Apr. 1	0 48.1	1 24 50.77	7 57 45.8	5.2	5.1	0.34
15	0 17.5	21 56 41.80	−13 58 51.7	5.1	5.0	0.34	2	0 48.7	1 29 26.96	+ 8 27 0.9	5.3	5.1	0.34
16	0 18.4	22 1 33.59	−13 33 41.3	5.1	5.0	0.34	3	0 49.4	1 34 3.72	+ 8 56 4.3	5.3	5.1	0.34

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Apr. 1	0 48.1	1 24 50.77	+ 7 57 45.8	5.2	5.1	0.34	May 17	1 34.0	5 12 12.64	+23 57 27.7	5.7	5.6	0.40
2	0 48.7	1 29 26.96	8 27 0.9	5.3	5.1	0.34	18	1 35.3	5 17 30.71	24 5 27.5	5.7	5.6	0.41
3	0 49.4	1 34 3.72	8 56 4.3	5.3	5.1	0.34	19	1 36.7	5 22 49.28	24 12 45.7	5.8	5.6	0.41
4	0 50.1	1 38 41.09	9 24 55.5	5.3	5.1	0.34	20	1 38.1	5 28 8.31	24 19 21.9	5.8	5.6	0.41
5	0 50.8	1 43 19.11	9 53 33.7	5.3	5.1	0.34	21	1 39.5	5 33 27.72	24 25 15.8	5.8	5.6	0.41
6	0 51.5	1 47 57.80	+10 21 58.0	5.3	5.1	0.34	22	1 40.9	5 38 47.45	+24 30 27.4	5.8	5.7	0.41
7	0 52.2	1 52 37.21	10 50 7.7	5.3	5.1	0.35	23	1 42.3	5 44 7.44	24 34 56.4	5.8	5.7	0.41
8	0 52.9	1 57 17.36	11 18 2.0	5.3	5.1	0.35	24	1 43.7	5 49 27.63	24 38 42.4	5.9	5.7	0.42
9	0 53.6	2 1 58.31	11 45 40.3	5.3	5.1	0.35	25	1 45.1	5 54 47.94	24 41 45.5	5.9	5.7	0.42
10	0 54.4	2 6 40.07	12 13 1.8	5.3	5.2	0.35	26	1 46.4	6 0 8.32	24 44 5.6	5.9	5.7	0.42
11	0 55.2	2 11 22.68	+12 40 5.7	5.3	5.2	0.35	27	1 47.8	6 5 28.70	+24 45 42.5	5.9	5.8	0.42
12	0 56.0	2 16 6.17	13 6 51.4	5.3	5.2	0.35	28	1 49.2	6 10 49.03	24 46 36.0	5.9	5.8	0.42
13	0 56.8	2 20 50.57	13 33 18.1	5.3	5.2	0.35	29	1 50.6	6 16 9.24	24 46 46.2	6.0	5.8	0.43
14	0 57.6	2 25 35.92	13 59 25.0	5.3	5.2	0.35	30	1 52.0	6 21 29.26	24 46 13.0	6.0	5.8	0.43
15	0 58.4	2 30 22.23	14 25 11.4	5.4	5.2	0.35	31	1 53.4	6 26 49.01	24 44 56.6	6.0	5.8	0.43
16	0 59.3	2 35 9.53	+14 50 36.6	5.4	5.2	0.35	June 1	1 54.8	6 32 8.43	+24 42 57.0	6.0	5.9	0.43
17	1 0.1	2 39 57.85	15 15 39.7	5.4	5.2	0.35	2	1 56.2	6 37 27.47	24 40 14.4	6.0	5.9	0.43
18	1 1.0	2 44 47.20	15 40 20.1	5.4	5.2	0.35	3	1 57.6	6 42 46.04	24 36 49.0	6.0	5.9	0.43
19	1 1.9	2 49 37.59	16 4 37.0	5.4	5.2	0.35	4	1 58.9	6 48 4.09	24 32 40.9	6.1	5.9	0.43
20	1 2.8	2 54 29.02	16 28 29.6	5.4	5.2	0.35	5	2 0.2	6 53 21.55	24 27 50.3	6.1	6.0	0.43
21	1 3.7	2 59 21.55	+16 51 57.1	5.4	5.2	0.36	6	2 1.5	6 58 38.38	+24 22 17.2	6.1	6.0	0.44
22	1 4.7	3 4 15.17	17 14 58.9	5.4	5.3	0.36	7	2 2.8	7 3 54.52	24 16 2.1	6.2	6.0	0.44
23	1 5.7	3 9 9.88	17 37 34.2	5.4	5.3	0.36	8	2 4.1	7 9 9.92	24 9 5.2	6.2	6.1	0.44
24	1 6.7	3 14 5.69	17 59 42.4	5.4	5.3	0.36	9	2 5.4	7 14 24.52	24 1 26.9	6.2	6.1	0.44
25	1 7.7	3 19 2.61	18 21 22.6	5.5	5.3	0.37	10	2 6.7	7 19 38.28	23 53 7.5	6.2	6.1	0.44
26	1 8.7	3 24 0.62	+18 42 34.1	5.5	5.3	0.37	11	2 8.0	7 24 51.12	+23 44 7.4	6.3	6.1	0.44
27	1 9.7	3 28 59.74	19 3 16.2	5.5	5.3	0.37	12	2 9.3	7 30 3.03	23 34 27.1	6.3	6.1	0.44
28	1 10.7	3 33 59.97	19 23 28.1	5.5	5.3	0.37	13	2 10.5	7 35 13.95	23 24 6.7	6.3	6.2	0.44
29	1 11.8	3 39 1.29	19 43 9.3	5.5	5.3	0.38	14	2 11.7	7 40 23.83	23 13 7.0	6.4	6.2	0.44
30	1 12.9	3 44 3.70	20 2 18.9	5.5	5.4	0.38	15	2 12.9	7 45 32.65	23 1 28.3	6.4	6.2	0.44
May 1	1 14.0	3 49 7.18	+20 20 56.3	5.5	5.4	0.38	16	2 14.1	7 50 40.35	+22 49 11.1	6.4	6.2	0.45
2	1 15.1	3 54 11.73	20 39 0.7	5.5	5.4	0.38	17	2 15.3	7 55 46.88	22 36 15.7	6.5	6.2	0.45
3	1 16.3	3 59 17.33	20 56 31.5	5.5	5.4	0.38	18	2 16.4	8 0 52.21	22 22 43.1	6.5	6.3	0.45
4	1 17.5	4 4 23.96	21 13 28.1	5.6	5.4	0.38	19	2 17.5	8 5 56.30	22 8 33.6	6.5	6.3	0.45
5	1 18.7	4 9 31.61	21 29 49.8	5.6	5.4	0.39	20	2 18.6	8 10 59.12	21 53 47.8	6.5	6.3	0.45
6	1 19.9	4 14 40.25	+21 45 36.1	5.6	5.4	0.39	21	2 19.7	8 16 0.65	+21 38 26.4	6.6	6.4	0.45
7	1 21.1	4 19 49.86	22 0 46.3	5.6	5.4	0.39	22	2 20.8	8 21 0.86	21 22 29.8	6.6	6.4	0.46
8	1 22.3	4 25 0.42	22 15 19.9	5.6	5.5	0.39	23	2 21.8	8 25 59.73	21 5 58.6	6.7	6.4	0.46
9	1 23.5	4 30 11.91	22 29 16.3	5.7	5.5	0.39	24	2 22.8	8 30 57.23	20 48 53.4	6.7	6.5	0.46
10	1 24.8	4 35 24.28	22 42 35.0	5.7	5.5	0.40	25	2 23.8	8 35 53.33	20 31 15.0	6.7	6.5	0.46
11	1 26.1	4 40 37.50	+22 55 15.3	5.7	5.5	0.40	26	2 24.8	8 40 48.01	+20 13 4.1	6.8	6.5	0.46
12	1 27.4	4 45 51.55	23 7 16.8	5.7	5.5	0.40	27	2 25.7	8 45 41.27	19 54 21.4	6.8	6.5	0.47
13	1 28.7	4 51 6.38	23 18 39.1	5.7	5.5	0.40	28	2 26.6	8 50 33.08	19 35 7.4	6.8	6.6	0.47
14	1 30.0	4 56 21.95	23 29 21.8	5.7	5.5	0.40	29	2 27.5	8 55 23.45	19 15 23.0	6.8	6.6	0.47
15	1 31.3	5 1 38.22	23 39 24.5	5.7	5.5	0.40	30	2 28.4	9 0 12.35	18 55 8.8	6.8	6.6	0.47
16	1 32.7	5 6 55.12	+23 48 46.6	5.7	5.6	0.40	July 1	2 29.2	9 4 59.77	+18 34 25.5	6.8	6.7	0.47
17	1 34.0	5 12 12.64	+23 57 27.7	5.7	5.6	0.40	2	2 30.0	9 9 45.72	+18 13 13.7	6.9	6.7	0.47

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
July 1	2 29.2	9 4 59.77	+18 34 25.5	6.8	6.7	0.47
2	2 30.0	9 9 45.72	18 13 13.7	6.9	6.7	0.47
3	2 30.8	9 14 30.19	17 51 34.2	6.9	6.7	0.47
4	2 31.6	9 19 13.18	17 29 27.6	6.9	6.7	0.47
5	2 32.4	9 23 54.70	17 6 54.8	7.0	6.8	0.48
6	2 33.1	9 28 34.77	+16 43 56.4	7.0	6.8	0.48
7	2 33.8	9 33 13.38	16 20 33.1	7.1	6.9	0.48
8	2 34.5	9 37 50.55	15 56 45.6	7.1	6.9	0.48
9	2 35.1	9 42 26.31	15 32 34.8	7.2	7.0	0.49
10	2 35.7	9 47 0.64	15 8 1.2	7.2	7.0	0.49
11	2 36.3	9 51 33.59	+14 43 5.6	7.2	7.0	0.49
12	2 36.9	9 56 5.18	14 17 48.6	7.3	7.1	0.49
13	2 37.5	10 0 35.41	13 52 10.9	7.3	7.1	0.49
14	2 38.0	10 5 4.31	13 26 13.2	7.4	7.2	0.49
15	2 38.5	10 9 31.91	12 59 56.3	7.4	7.2	0.50
16	2 39.0	10 13 58.21	+12 33 20.9	7.4	7.2	0.50
17	2 39.5	10 18 23.24	12 6 27.6	7.5	7.3	0.50
18	2 39.9	10 22 47.02	11 39 17.3	7.5	7.3	0.50
19	2 40.3	10 27 9.59	11 11 50.9	7.6	7.3	0.51
20	2 40.8	10 31 30.96	10 44 9.0	7.6	7.4	0.51
21	2 41.2	10 35 51.14	+10 16 11.9	7.7	7.5	0.51
22	2 41.6	10 40 10.17	9 48 0.3	7.7	7.5	0.51
23	2 42.0	10 44 28.07	9 19 35.2	7.8	7.6	0.52
24	2 42.3	10 48 44.88	8 50 57.0	7.8	7.6	0.52
25	2 42.6	10 53 0.59	8 22 6.6	7.9	7.7	0.52
26	2 42.9	10 57 15.24	+ 7 53 4.7	7.9	7.7	0.52
27	2 43.2	11 1 28.87	7 23 51.9	8.0	7.8	0.53
28	2 43.5	11 5 41.51	6 54 29.1	8.0	7.8	0.53
29	2 43.7	11 9 53.16	6 24 56.9	8.1	7.9	0.53
30	2 43.9	11 14 3.87	5 55 16.0	8.2	7.9	0.53
31	2 44.1	11 18 13.64	+ 5 25 26.9	8.2	8.0	0.54
Aug. 1	2 44.3	11 22 22.50	4 55 30.4	8.3	8.0	0.54
2	2 44.5	11 26 30.50	4 25 27.1	8.4	8.1	0.54
3	2 44.7	11 30 37.66	3 55 17.7	8.4	8.1	0.55
4	2 44.9	11 34 44.02	3 25 2.7	8.5	8.2	0.55
5	2 45.1	11 38 49.61	+ 2 54 42.9	8.6	8.3	0.55
6	2 45.2	11 42 54.46	2 24 19.0	8.6	8.3	0.56
7	2 45.3	11 46 58.59	1 53 51.5	8.7	8.4	0.56
8	2 45.4	11 51 2.04	1 23 21.1	8.8	8.4	0.57
9	2 45.5	11 55 4.85	0 52 48.4	8.9	8.5	0.57
10	2 45.6	11 59 7.04	+ 0 22 13.9	8.9	8.6	0.57
11	2 45.7	12 3 8.64	− 0 8 21.8	9.0	8.7	0.58
12	2 45.8	12 7 9.70	0 38 58.0	9.0	8.7	0.58
13	2 45.8	12 11 10.24	1 9 34.2	9.1	8.8	0.59
14	2 45.9	12 15 10.29	1 40 9.6	9.1	8.9	0.59
15	2 45.9	12 19 9.87	− 2 10 43.7	9.2	9.0	0.59
16	2 46.0	12 23 8.99	− 2 41 16.1	9.3	9.0	0.59
Aug. 16	2 46.0	12 23 8.99	− 2 41 16.1	9.3	9.0	0.59
17	2 46.0	12 27 7.68	3 11 46.0	9.3	9.1	0.60
18	2 46.1	12 31 5.97	3 42 12.4	9.4	9.1	0.61
19	2 46.1	12 35 3.88	4 12 35.0	9.5	9.2	0.62
20	2 46.1	12 39 1.43	4 42 53.4	9.5	9.3	0.63
21	2 46.1	12 42 58.64	− 5 13 6.8	9.6	9.3	0.63
22	2 46.1	12 46 55.52	5 43 14.6	9.7	9.4	0.64
23	2 46.1	12 50 52.10	6 13 16.2	9.8	9.5	0.65
24	2 46.1	12 54 48.39	6 43 10.9	9.9	9.6	0.65
25	2 46.1	12 58 44.38	7 12 58.2	10.0	9.7	0.66
26	2 46.1	13 2 40.10	− 7 42 37.3	10.1	9.8	0.67
27	2 46.1	13 6 35.54	8 12 7.6	10.2	9.9	0.67
28	2 46.0	13 10 30.72	8 41 28.5	10.3	10.0	0.68
29	2 46.0	13 14 25.64	9 10 39.5	10.4	10.1	0.68
30	2 45.9	13 18 20.32	9 39 39.9	10.5	10.2	0.69
31	2 45.9	13 22 14.76	−10 8 29.0	10.6	10.3	0.69
Sept. 1	2 45.9	13 26 8.97	10 37 6.3	10.7	10.4	0.70
2	2 45.8	13 30 2.94	11 5 31.1	10.8	10.5	0.71
3	2 45.8	13 33 56.69	11 33 43.1	10.9	10.6	0.72
4	2 45.7	13 37 50.22	12 1 41.6	11.0	10.7	0.72
5	2 45.7	13 41 43.54	−12 29 25.8	11.1	10.8	0.73
6	2 45.6	13 45 36.63	12 56 55.3	11.2	10.9	0.74
7	2 45.6	13 49 29.49	13 24 9.4	11.3	11.0	0.75
8	2 45.5	13 53 22.11	13 51 7.7	11.5	11.1	0.76
9	2 45.5	13 57 14.51	14 17 49.6	11.6	11.2	0.77
10	2 45.4	14 1 6.66	−14 44 14.5	11.7	11.3	0.78
11	2 45.3	14 4 58.54	15 10 21.9	11.8	11.4	0.79
12	2 45.2	14 8 50.14	15 36 11.3	11.9	11.5	0.80
13	2 45.1	14 12 41.45	16 1 42.2	12.1	11.7	0.81
14	2 45.0	14 16 32.42	16 26 54.0	12.2	11.8	0.82
15	2 44.9	14 20 23.04	−16 51 46.0	12.3	12.0	0.83
16	2 44.8	14 24 13.27	17 16 18.0	12.4	12.1	0.84
17	2 44.7	14 28 3.09	17 40 29.0	12.6	12.2	0.85
18	2 44.6	14 31 52.45	18 4 18.8	12.8	12.4	0.87
19	2 44.5	14 35 41.31	18 27 46.8	12.9	12.5	0.88
20	2 44.4	14 39 29.58	−18 50 52.4	13.1	12.7	0.89
21	2 44.3	14 43 17.22	19 13 35.3	13.2	12.8	0.90
22	2 44.1	14 47 4.16	19 35 54.8	13.3	13.0	0.91
23	2 43.9	14 50 50.35	19 57 50.4	13.5	13.2	0.93
24	2 43.7	14 54 35.71	20 19 21.6	13.6	13.3	0.94
25	2 43.5	14 58 20.15	−20 40 27.9	13.8	13.5	0.96
26	2 43.3	15 2 3.59	21 1 8.6	14.0	13.6	0.97
27	2 43.1	15 5 45.96	21 21 23.2	14.2	13.7	0.98
28	2 42.8	15 9 27.18	21 41 11.4	14.4	13.9	1.00
29	2 42.5	15 13 7.12	22 0 32.7	14.6	14.1	1.01
30	2 42.2	15 16 45.69	−22 19 26.7	14.8	14.3	1.03
Oct. 1	2 41.9	15 20 22.79	−22 37 53.0	15.0	14.5	1.04

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Oct. 1	2 41.9	15 20 22.79	−22 37 53.0	15.0	14.5	1.04	Nov. 17	1 2.3	16 45 50.39	−26 29 13.4	30.5	29.6	2.20
2	2 41.5	15 23 58.32	22 55 51.1	15.2	14.7	1.06	18	0 57.0	16 44 25.45	26 16 48.3	30.9	30.0	2.22
3	2 41.1	15 27 32.16	23 13 20.7	15.4	14.9	1.08	19	0 51.5	16 42 51.43	26 3 27.2	31.2	30.3	2.24
4	2 40.7	15 31 4.19	23 30 21.4	15.6	15.1	1.10	20	0 45.8	16 41 8.84	25 49 10.0	31.5	30.6	2.26
5	2 40.2	15 34 34.30	23 46 52.9	15.8	15.3	1.12	21	0 40.0	16 39 18.23	25 33 58.0	31.8	30.9	2.28
6	2 39.7	15 38 2.34	−24 2 54.8	16.0	15.5	1.14	22	0 34.1	16 37 20.25	−25 17 52.5	32.1	31.2	2.29
7	2 39.2	15 41 28.19	24 18 26.7	16.2	15.7	1.16	23	0 28.1	16 35 15.68	25 0 55.4	32.4	31.4	2.30
8	2 38.7	15 44 51.69	24 33 28.3	16.5	16.0	1.18	24	0 22.0	16 33 5.33	24 43 9.0	32.6	31.6	2.31
9	2 38.1	15 48 12.70	24 47 59.4	16.7	16.2	1.20	25	0 15.9	16 30 50.16	24 24 36.7	32.8	31.8	2.32
10	2 37.5	15 51 31.05	25 1 59.8	17.0	16.5	1.22	26	0 9.7	16 28 31.16	24 5 22.7	33.0	31.9	2.33
11	2 36.8	15 54 46.59	−25 15 29.0	17.2	16.7	1.24	27	0 3.3	16 26 9.24	−23 45 31.4	33.1	32.1	2.34
12	2 36.1	15 57 59.13	25 28 27.0	17.4	16.9	1.26	27	23 57.0	16 23 45.40	23 25 7.0	33.1	32.1	2.34
13	2 35.3	16 1 8.49	25 40 53.3	17.7	17.2	1.28	28	23 50.7	16 21 20.65	23 4 15.4	33.1	32.1	2.33
14	2 34.5	16 4 14.47	25 52 47.7	17.9	17.4	1.30	29	23 44.3	16 18 56.09	22 43 2.2	33.1	32.2	2.33
15	2 33.6	16 7 16.88	26 4 9.9	18.2	17.7	1.32	30	23 38.1	16 16 32.80	22 21 34.3	33.1	32.2	2.32
16	2 32.6	16 10 15.50	−26 14 59.8	18.5	17.9	1.34	Dec. 1	23 31.8	16 14 11.85	−21 59 58.7	33.1	32.2	2.31
17	2 31.6	16 13 10.11	26 25 17.1	18.8	18.2	1.36	2	23 25.5	16 11 54.21	21 38 22.1	33.0	32.1	2.30
18	2 30.5	16 16 0.47	26 35 1.5	19.1	18.5	1.38	3	23 19.4	16 9 40.80	21 16 51.2	32.9	31.9	2.29
19	2 29.3	16 18 46.34	26 44 12.6	19.4	18.8	1.40	4	23 13.3	16 7 32.49	20 55 32.5	32.7	31.7	2.27
20	2 28.0	16 21 27.47	26 52 50.2	19.7	19.1	1.42	5	23 7.4	16 5 30.11	20 34 32.9	32.5	31.5	2.25
21	2 26.7	16 24 3.60	−27 0 54.2	20.0	19.4	1.45	6	23 1.5	16 3 34.39	−20 13 59.1	32.3	31.3	2.23
22	2 25.3	16 26 34.43	27 8 24.0	20.3	19.7	1.48	7	22 55.8	16 1 46.00	19 53 56.8	32.0	31.0	2.21
23	2 23.8	16 28 59.67	27 15 19.2	20.6	20.0	1.51	8	22 50.2	16 0 5.50	19 34 31.6	31.7	30.7	2.19
24	2 22.2	16 31 19.04	27 21 39.4	20.9	20.3	1.53	9	22 44.7	15 58 33.39	19 15 48.6	31.4	30.4	2.17
25	2 20.5	16 33 32.25	27 27 24.3	21.3	20.6	1.56	10	22 39.4	15 57 10.09	18 57 52.4	31.1	30.1	2.15
26	2 18.7	16 35 39.00	−27 32 33.4	21.6	21.0	1.58	11	22 34.2	15 55 55.89	−18 40 46.8	30.8	29.8	2.12
27	2 16.8	16 37 38.99	27 37 6.1	22.0	21.3	1.61	12	22 29.2	15 54 51.05	18 24 35.0	30.4	29.5	2.09
28	2 14.7	16 39 31.91	27 41 1.8	22.4	21.7	1.64	13	22 24.4	15 53 55.77	18 9 19.6	30.0	29.1	2.06
29	2 12.5	16 41 17.47	27 44 20.2	22.7	22.0	1.66	14	22 19.7	15 53 10.12	17 55 2.5	29.6	28.7	2.03
30	2 10.2	16 42 55.36	27 47 0.6	23.1	22.4	1.69	15	22 15.2	15 52 34.19	17 41 45.4	29.2	28.3	1.99
31	2 7.8	16 44 25.32	−27 49 2.2	23.5	22.8	1.72	16	22 10.8	15 52 7.98	−17 29 29.5	28.8	27.9	1.96
Nov. 1	2 5.2	16 45 47.01	27 50 24.2	23.9	23.2	1.75	17	22 6.6	15 51 51.45	17 18 15.4	28.3	27.5	1.93
2	2 2.4	16 47 0.12	27 51 5.8	24.3	23.6	1.78	18	22 2.5	15 51 44.52	17 8 3.0	27.9	27.1	1.90
3	1 59.5	16 48 4.40	27 51 6.1	24.7	24.0	1.81	19	21 58.6	15 51 47.08	16 58 52.0	27.5	26.7	1.87
4	1 56.5	16 48 59.57	27 50 24.5	25.1	24.4	1.84	20	21 54.9	15 51 59.03	16 50 41.9	27.1	26.3	1.84
5	1 53.3	16 49 45.40	−27 48 59.9	25.5	24.8	1.87	21	21 51.3	15 52 20.23	−16 43 31.7	26.7	25.9	1.82
6	1 50.0	16 50 21.65	27 46 51.2	25.9	25.2	1.90	22	21 47.9	15 52 50.49	16 37 20.4	26.2	25.5	1.80
7	1 46.5	16 50 48.11	27 43 57.4	26.4	25.6	1.93	23	21 44.6	15 53 29.64	16 32 6.4	25.8	25.1	1.78
8	1 42.9	16 51 4.55	27 40 17.2	26.8	26.0	1.96	24	21 41.5	15 54 17.49	16 27 48.1	25.4	24.7	1.75
9	1 39.1	16 51 10.87	27 35 49.3	27.2	26.4	1.99	25	21 38.5	15 55 13.83	16 24 23.7	25.0	24.3	1.73
10	1 35.1	16 51 6.90	−27 30 32.7	27.6	26.8	2.02	26	21 35.6	15 56 18.43	−16 21 51.3	24.6	23.9	1.70
11	1 30.9	16 50 52.56	27 24 26.0	28.0	27.2	2 05	27	21 32.9	15 57 31.09	16 20 8.9	24.2	23.5	1.67
12	1 26.6	16 50 27.78	27 17 27.7	28.5	27.7	2.08	28	21 30.3	15 58 51.61	16 19 14.2	23.8	23.1	1.64
13	1 22.1	16 49 52.64	27 9 37.1	28.9	28.1	2.11	29	21 27.8	16 0 19.74	16 19 5.0	23.4	22.7	1.61
14	1 17.4	16 49 7.22	27 0 53.4	29.3	28.4	2.14	30	21 25.5	16 1 55.26	16 19 39.1	23.0	22.3	1.59
15	1 12.6	16 48 11.58	−26 51 15.4	29.7	28.8	2.16	31	21 23.3	16 3 37.95	−16 20 54.1	22.6	22.0	1.56
16	1 7.5	16 47 5.89	−26 40 42.2	30.1	29.2	2.18	32	21 21.2	16 5 27.58	−16 22 47.9	22.3	21.6	1.54

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Jan. 0	9 1.1	3 40 24.27	+18 40 47.2	2.1	22.1	1.66	Feb. 15	6 1.5	3 41 41.56	+18 57 7.7	1.8	19.1	1.43
1	8 56.9	3 40 7.52	18 40 7.0	2.1	22.0	1.65	16	5 58.0	3 42 2.02	18 58 29.4	1.8	19.1	1.43
2	8 52.7	3 39 51.55	18 39 29.3	2.1	22.0	1.65	17	5 54.4	3 42 23.20	18 59 53.2	1.8	19.0	1.42
3	8 48.5	3 39 36.38	18 38 54.3	2.0	21.9	1.64	18	5 50.8	3 42 45.10	19 1 19.2	1.8	18.9	1.42
4	8 44.4	3 39 21.99	18 38 22.0	2.0	21.9	1.64	19	5 47.2	3 43 7.71	19 2 47.3	1.8	18.9	1.41
5	8 40.2	3 39 8.39	+18 37 52.3	2.0	21.8	1.63	20	5 43.7	3 43 31.04	+19 4 17.4	1.7	18.8	1.41
6	8 36.1	3 38 55.58	18 37 25.3	2.0	21.7	1.63	21	5 40.2	3 43 55.07	19 5 49.4	1.7	18.7	1.41
7	8 31.9	3 38 43.59	18 37 1.0	2.0	21.7	1.62	22	5 36.6	3 44 19.78	19 7 23.4	1.7	18.7	1.40
8	8 27.8	3 38 32.43	18 36 39.5	2.0	21.6	1.62	23	5 33.1	3 44 45.18	19 8 59.3	1.7	18.6	1.40
9	8 23.7	3 38 22.08	18 36 20.7	2.0	21.5	1.61	24	5 29.6	3 45 11.28	19 10 36.9	1.7	18.5	1.39
10	8 19.6	3 38 12.55	+18 36 4.6	2.0	21.5	1.61	25	5 26.1	3 45 38.04	+19 12 16.3	1.7	18.5	1.39
11	8 15.5	3 38 3.84	18 35 51.4	2.0	21.4	1.60	26	5 22.7	3 46 5.46	19 13 57.5	1.7	18.4	1.39
12	8 11.5	3 37 55.96	18 35 41.0	2.0	21.3	1.60	27	5 19.2	3 46 33.54	19 15 40.4	1.7	18.3	1.38
13	8 7.4	3 37 48.91	18 35 33.4	2.0	21.3	1.59	28	5 15.7	3 47 2.28	19 17 24.9	1.7	18.3	1.38
14	8 3.4	3 37 42.70	18 35 28.6	2.0	21.2	1.59	Mar. 1	5 12.3	3 47 31.65	19 19 11.0	1.7	18.2	1.38
15	7 59.3	3 37 37.32	+18 35 26.6	2.0	21.1	1.58	2	5 8.9	3 48 1.65	+19 20 58.7	1.7	18.2	1.37
16	7 55.3	3 37 32.78	18 35 27.5	2.0	21.1	1.58	3	5 5.4	3 48 32.28	19 22 48.0	1.7	18.1	1.37
17	7 51.3	3 37 29.08	18 35 31.2	2.0	21.0	1.57	4	5 2.0	3 49 3.52	19 24 38.7	1.7	18.1	1.36
18	7 47.4	3 37 26.21	18 35 37.8	2.0	20.9	1.57	5	4 58.6	3 49 35.36	19 26 30.7	1.7	18.0	1.36
19	7 43.4	3 37 24.20	18 35 47.2	1.9	20.9	1.57	6	4 55.2	3 50 7.80	+19 28 24.2	1.7	18.0	1.36
20	7 39.4	3 37 23.04	+18 35 59.5	1.9	20.8	1.56	Sept. 6	19 27.2	6 30 1.54	+22 59 31.3	1.6	17.3	1.33
21	7 35.5	3 37 22.72	18 36 14.6	1.9	20.7	1.55	7	19 24.0	6 30 39.39	22 59 7.6	1.6	17.3	1.34
22	7 31.6	3 37 23.25	18 36 32.5	1.9	20.7	1.55	8	19 20.7	6 31 16.69	22 58 43.8	1.6	17.4	1.34
23	7 27.7	3 37 24.63	18 36 53.3	1.9	20.6	1.54	9	19 17.4	6 31 53.44	22 58 19.9	1.6	17.4	1.34
24	7 23.8	3 37 26.85	18 37 16.9	1.9	20.5	1.54	10	19 14.1	6 32 29.63	22 57 55.9	1.6	17.5	1.35
25	7 19.9	3 37 29.91	+18 37 43.2	1.9	20.5	1.53	11	19 10.7	6 33 5.25	+22 57 31.7	1.6	17.5	1.35
26	7 16.0	3 37 33.81	18 38 12.4	1.9	20.4	1.53	12	19 7.4	6 33 40.30	22 57 7.5	1.6	17.6	1.35
27	7 12.2	3 37 38.55	18 38 44.3	1.9	20.3	1.52	13	19 4.0	6 34 14.76	22 56 43.4	1.6	17.6	1.36
28	7 8.3	3 37 44.12	18 39 19.0	1.9	20.3	1.52	14	19 0.6	6 34 48.63	22 56 19.3	1.7	17.7	1.36
29	7 4.5	3 37 50.52	18 39 56.6	1.9	20.2	1.51	15	18 57.3	6 35 21.91	22 55 55.3	1.7	17.7	1.37
30	7 0.7	3 37 57.75	+18 40 37.0	1.9	20.1	1.51	16	18 53.9	6 35 54.58	+22 55 31.4	1.7	17.8	1.37
31	6 56.9	3 38 5.81	18 41 20.0	1.9	20.1	1.50	17	18 50.5	6 36 26.63	22 55 7.6	1.7	17.8	1.37
Feb. 1	6 53.1	3 38 14.68	18 42 5.7	1.9	20.0	1.50	18	18 47.1	6 36 58.06	22 54 43.9	1.7	17.9	1.38
2	6 49.3	3 38 24.36	18 42 54.0	1.9	19.9	1.49	19	18 43.6	6 37 28.86	22 54 20.4	1.7	17.9	1.38
3	6 45.6	3 38 34.85	18 43 45.0	1.9	19.9	1.49	20	18 40.2	6 37 59.02	22 53 57.1	1.7	18.0	1.39
4	6 41.9	3 38 46.15	+18 44 38.5	1.8	19.8	1.49	21	18 36.8	6 38 28.53	+22 53 34.0	1.7	18.0	1.39
5	6 38.1	3 38 58.24	18 45 34.6	1.8	19.8	1.48	22	18 33.3	6 38 57.39	22 53 11.2	1.7	18.1	1.39
6	6 34.4	3 39 11.11	18 46 33.1	1.8	19.7	1.48	23	18 29.8	6 39 25.59	22 52 48.8	1.7	18.1	1.40
7	6 30.7	3 39 24.77	18 47 34.2	1.8	19.7	1.47	24	18 26.4	6 39 53.13	22 52 26.6	1.7	18.2	1.40
8	6 27.0	3 39 39.21	18 48 37.7	1.8	19.6	1.47	25	18 22.9	6 40 19.99	22 52 4.8	1.7	18.2	1.40
9	6 23.3	3 39 54.43	+18 49 43.6	1.8	19.5	1.46	26	18 19.4	6 40 46.17	+22 51 43.5	1.7	18.3	1.41
10	6 19.7	3 40 10.41	18 50 51.9	1.8	19.5	1.46	27	18 15.9	6 41 11.66	22 51 22.6	1.7	18.3	1.41
11	6 16.0	3 40 27.14	18 52 2.5	1.8	19.4	1.45	28	18 12.4	6 41 36.45	22 51 2.1	1.7	18.4	1.42
12	6 12.4	3 40 44.62	18 53 15.4	1.8	19.3	1.45	29	18 8.8	6 42 0.53	22 50 42.1	1.7	18.4	1.42
13	6 8.8	3 41 2.86	18 54 30.5	1.8	19.3	1.44	30	18 5.3	6 42 23.91	22 50 22.6	1.7	18.5	1.42
14	6 5.1	3 41 21.84	+18 55 48.0	1.8	19.2	1.44	Oct. 1	18 1.7	6 42 46.57	+22 50 3.7	1.7	18.5	1.43
15	6 1.5	3 41 41.56	+18 57 7.7	1.8	19.1	1.43	2	17 58.1	6 43 8.52	+22 49 45.3	1.7	18.6	1.43

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Oct. 1	18 1.7	6 42 46.57	+22 50 3.7	1.7	18.5	1.43	Nov. 16	15 3.8	6 45 40.10	+22 50 55.7	2.0	21.3	1.64
2	17 58.1	6 43 8.52	22 49 45.3	1.7	18.6	1.43	17	14 59.6	6 45 24.10	22 51 19.4	2.0	21.3	1.64
3	17 54.5	6 43 29.73	22 49 27.5	1.8	18.7	1.44	18	14 55.4	6 45 7.30	22 51 44.0	2.0	21.4	1.65
4	17 51.0	6 43 50.22	22 49 10.4	1.8	18.8	1.44	19	14 51.1	6 44 49.70	22 52 9.4	2.0	21.4	1.65
5	17 47.4	6 44 9.97	22 48 54.0	1.8	18.8	1.45	20	14 46.9	6 44 31.33	22 52 35.5	2.0	21.5	1.65
6	17 43.8	6 44 28.97	+22 48 38.2	1.8	18.9	1.45	21	14 42.6	6 44 12.19	+22 53 2.4	2.0	21.5	1.66
7	17 40.1	6 44 47.21	22 48 23.1	1.8	19.0	1.46	22	14 38.4	6 43 52.29	22 53 30.0	2.0	21.6	1.66
8	17 36.5	6 45 4.68	22 48 8.7	1.8	19.0	1.46	23	14 34.1	6 43 31.64	22 53 58.4	2.0	21.6	1.67
9	17 32.9	6 45 21.38	22 47 55.0	1.8	19.1	1.47	24	14 29.8	6 43 10.25	22 54 27.4	2.0	21.7	1.67
10	17 29.2	6 45 37.31	22 47 42.1	1.8	19.1	1.47	25	14 25.5	6 42 48.15	22 54 57.0	2.0	21.7	1.67
11	17 25.5	6 45 52.44	+22 47 30.0	1.8	19.2	1.48	26	14 21.2	6 42 25.34	+22 55 27.2	2.0	21.8	1.68
12	17 21.8	6 46 6.78	22 47 18.8	1.8	19.2	1.48	27	14 16.9	6 42 1.83	22 55 58.0	2.0	21.8	1.68
13	17 18.1	6 46 20.32	22 47 8.4	1.8	19.3	1.49	28	14 12.5	6 41 37.64	22 56 29.3	2.0	21.9	1.68
14	17 14.4	6 46 33.04	22 46 58.9	1.8	19.3	1.49	29	14 8.2	6 41 12.78	22 57 1.0	2.0	21.9	1.69
15	17 10.6	6 46 44.95	22 46 50.3	1.8	19.4	1.50	30	14 3.8	6 40 47.28	22 57 33.2	2.1	21.9	1.69
16	17 6.9	6 46 56.04	+22 46 42.5	1.8	19.4	1.50	Dec. 1	13 59.5	6 40 21.14	+22 58 5.9	2.1	22.0	1.70
17	17 3.1	6 47 6.30	22 46 35.6	1.8	19.5	1.51	2	13 55.1	6 39 54.38	22 58 39.0	2.1	22.0	1.70
18	16 59.4	6 47 15.75	22 46 29.7	1.8	19.5	1.51	3	13 50.7	6 39 27.02	22 59 12.4	2.1	22.1	1.70
19	16 55.6	6 47 24.36	22 46 24.8	1.8	19.6	1.51	4	13 46.3	6 38 59.08	22 59 46.1	2.1	22.1	1.71
20	16 51.8	6 47 32.15	22 46 20.8	1.8	19.6	1.52	5	13 41.9	6 38 30.55	23 0 20.0	2.1	22.1	1.71
21	16 48.0	6 47 39.10	+22 46 17.7	1.8	19.7	1.52	6	13 37.5	6 38 1.48	+23 0 54.2	2.1	22.2	1.71
22	16 44.1	6 47 45.20	22 46 15.7	1.9	19.7	1.53	7	13 33.1	6 37 31.89	23 1 28.6	2.1	22.2	1.71
23	16 40.3	6 47 50.45	22 46 14.6	1.9	19.8	1.53	8	13 28.6	6 37 1.79	23 2 3.2	2.1	22.2	1.72
24	16 36.4	6 47 54.86	22 46 14.6	1.9	19.8	1.53	9	13 24.2	6 36 31.19	23 2 37.9	2.1	22.3	1.72
25	16 32.5	6 47 58.42	22 46 15.6	1.9	19.9	1.54	10	13 19.7	6 36 0.11	23 3 12.7	2.1	22.3	1.72
26	16 28.7	6 48 1.13	+22 46 17.6	1.9	20.0	1.54	11	13 15.3	6 35 28.59	+23 3 47.5	2.1	22.4	1.72
27	16 24.8	6 48 2.99	22 46 20.6	1.9	20.0	1.55	12	13 10.8	6 34 56.65	23 4 22.3	2.1	22.4	1.73
28	16 20.8	6 48 3.99	22 46 24.6	1.9	20.1	1.55	13	13 6.3	6 34 24.31	23 4 57.1	2.1	22.4	1.73
29	16 16.9	6 48 4.12	22 46 29.7	1.9	20.2	1.56	14	13 1.9	6 33 51.59	23 5 31.8	2.1	22.4	1.73
30	16 13.0	6 48 3.39	22 46 35.9	1.9	20.2	1.56	15	12 57.4	6 33 18.51	23 6 6.4	2.1	22.4	1.73
31	16 9.0	6 48 1.81	+22 46 43.1	1.9	20.3	1.57	16	12 52.9	6 32 45.11	+23 6 40.8	2.1	22.4	1.73
Nov. 1	16 5.0	6 47 59.38	22 46 51.3	1.9	20.4	1.57	17	12 48.4	6 32 11.40	23 7 15.1	2.1	22.5	1.73
2	16 1.1	6 47 56.09	22 47 0.6	1.9	20.4	1.58	18	12 43.9	6 31 37.43	23 7 49.2	2.1	22.5	1.73
3	15 57.1	6 47 51.93	22 47 11.0	1.9	20.5	1.58	19	12 39.4	6 31 3.22	23 8 23.0	2.1	22.5	1.74
4	15 53.0	6 47 46.91	22 47 22.3	1.9	20.6	1.59	20	12 34.9	6 30 28.79	23 8 56.6	2.1	22.5	1.74
5	15 49.0	6 47 41.03	+22 47 34.6	1.9	20.6	1.59	21	12 30.4	6 29 54.16	+23 9 30.0	2.1	22.5	1.74
6	15 45.0	6 47 34.29	22 47 48.0	1.9	20.7	1.60	22	12 25.9	6 29 19.37	23 10 3.0	2.1	22.5	1.74
7	15 40.9	6 47 26.69	22 48 2.4	1.9	20.8	1.60	23	12 21.4	6 28 44.44	23 10 35.6	2.1	22.5	1.74
8	15 36.8	6 47 18.24	22 48 17.8	1.9	20.8	1.61	24	12 16.9	6 28 9.40	23 11 7.8	2.1	22.5	1.74
9	15 32.7	6 47 8.94	22 48 34.2	2.0	20.9	1.61	25	12 12.4	6 27 34.27	23 11 39.6	2.1	22.5	1.74
10	15 28.7	6 46 58.77	+22 48 51.6	2.0	21.0	1.62	26	12 7.8	6 26 59.09	+23 12 11.0	2.1	22.5	1.74
11	15 24.5	6 46 47.74	22 49 10.0	2.0	21.0	1.62	27	12 3.3	6 26 23.87	23 12 42.0	2.1	22.5	1.74
12	15 20.4	6 46 35.88	22 49 29.3	2.0	21.1	1.62	28	11 58.8	6 25 48.64	23 13 12.6	2.1	22.5	1.74
13	15 16.3	6 46 23.18	22 49 49.5	2.0	21.1	1.63	29	11 54.3	6 25 13.42	23 13 42.8	2.1	22.5	1.74
14	15 12.1	6 46 9.66	22 50 10.7	2.0	21.2	1.63	30	11 49.8	6 24 38.25	23 14 12.4	2.1	22.5	1.74
15	15 7.9	6 45 55.29	+22 50 32.8	2.0	21.2	1.64	31	11 45.3	6 24 3.15	+23 14 41.4	2.1	22.5	1.74
16	15 3.8	6 45 40.10	+22 50 55.7	2.0	21.3	1.64	32	11 40.8	6 23 28.17	+23 15 10.0	2.1	22.5	1.74

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
June 1	18 25.8	23 5 52.58	−7 43 34.7	0.9	8.0	0.58	July 17	15 25.5	23 6 31.47	−7 51 35.1	1.0	8.6	0.62
2	18 22.0	23 6 1.53	7 42 54.3	0.9	8.0	0.58	18	15 21.5	23 6 23.91	7 52 36.9	1.0	8.7	0.63
3	18 18.2	23 6 10.13	7 42 16.1	0.9	8.1	0.58	19	15 17.4	23 6 16.02	7 53 40.5	1.0	8.7	0.63
4	18 14.4	23 6 18.39	7 41 40.1	0.9	8.1	0.58	20	15 13.4	23 6 7.80	7 54 46.1	1.0	8.7	0.63
5	18 10.6	23 6 26.30	7 41 6.4	0.9	8.1	0.58	21	15 9.3	23 5 59.25	7 55 53.6	1.0	8.7	0.63
6	18 6.8	23 6 33.86	−7 40 34.9	0.9	8.1	0.58	22	15 5.2	23 5 50.37	−7 57 2.9	1.0	8.7	0.63
7	18 3.0	23 6 41.08	7 40 5.6	0.9	8.1	0.58	23	15 1.1	23 5 41.19	7 58 14.0	1.0	8.7	0.63
8	17 59.2	23 6 47.94	7 39 38.5	0.9	8.1	0.59	24	14 57.0	23 5 31.70	7 59 26.9	1.0	8.7	0.63
9	17 55.3	23 6 54.45	7 39 13.7	0.9	8.1	0.59	25	14 52.9	23 5 21.89	8 0 41.7	1.0	8.7	0.63
10	17 51.5	23 7 0.59	7 38 51.1	0.9	8.2	0.59	26	14 48.8	23 5 11.78	8 1 58.2	1.0	8.7	0.63
11	17 47.6	23 7 6.37	−7 38 30.9	0.9	8.2	0.59	27	14 44.7	23 5 1.37	−8 3 16.3	1.0	8.8	0.64
12	17 43.8	23 7 11.81	7 38 13.0	0.9	8.2	0.59	28	14 40.6	23 4 50.67	8 4 36.0	1.0	8.8	0.64
13	17 40.0	23 7 16.87	7 37 57.3	0.9	8.2	0.59	29	14 36.5	23 4 39.68	8 5 57.3	1.0	8.8	0.64
14	17 36.1	23 7 21.57	7 37 43.9	0.9	8.2	0.59	30	14 32.4	23 4 28.40	8 7 20.3	1.0	8.8	0.64
15	17 32.3	23 7 25.91	7 37 32.8	0.9	8.2	0.59	31	14 28.3	23 4 16.85	8 8 44.6	1.0	8.8	0.64
16	17 28.4	23 7 29.87	−7 37 24.0	0.9	8.2	0.59	Aug. 1	14 24.1	23 4 5.03	−8 10 10.5	1.0	8.8	0.64
17	17 24.5	23 7 33.47	7 37 17.5	0.9	8.3	0.60	2	14 20.0	23 3 52.94	8 11 37.9	1.0	8.8	0.64
18	17 20.7	23 7 36.70	7 37 13.4	0.9	8.3	0.60	3	14 15.9	23 3 40.59	8 13 6.7	1.0	8.8	0.64
19	17 16.8	23 7 39.56	7 37 11.6	0.9	8.3	0.60	4	14 11.7	23 3 27.99	8 14 36.8	1.0	8.8	0.64
20	17 12.9	23 7 42.06	7 37 12.1	0.9	8.3	0.60	5	14 7.6	23 3 15.15	8 16 8.2	1.0	8.9	0.64
21	17 9.0	23 7 44.19	−7 37 14.9	0.9	8.3	0.60	6	14 3.4	23 3 2.06	−8 17 41.0	1.0	8.9	0.64
22	17 5.1	23 7 45.94	7 37 20.0	0.9	8.3	0.60	7	13 59.2	23 2 48.72	8 19 15.1	1.0	8.9	0.64
23	17 1.2	23 7 47.33	7 37 27.4	0.9	8.3	0.60	8	13 55.1	23 2 35.15	8 20 50.2	1.0	8.9	0.64
24	16 57.3	23 7 48.35	7 37 37.2	0.9	8.4	0.60	9	13 51.0	23 2 21.35	8 22 26.5	1.0	8.9	0.64
25	16 53.3	23 7 49.00	7 37 49.3	0.9	8.4	0.60	10	13 46.8	23 2 7.32	8 24 4.0	1.0	8.9	0.64
26	16 49.4	23 7 49.27	−7 38 3.6	0.9	8.4	0.60	11	13 42.6	23 1 53.08	−8 25 42.5	1.0	8.9	0.65
27	16 45.5	23 7 49.17	7 38 20.2	0.9	8.4	0.60	12	13 38.4	23 1 38.65	8 27 22.0	1.0	8.9	0.65
28	16 41.5	23 7 48.71	7 38 39.0	0.9	8.4	0.60	13	13 34.3	23 1 24.01	8 29 2.5	1.0	8.9	0.65
29	16 37.6	23 7 47.88	7 39 0.1	1.0	8.4	0.60	14	13 30.1	23 1 9.17	8 30 44.1	1.0	8.9	0.65
30	16 33.6	23 7 46.68	7 39 23.5	1.0	8.4	0.60	15	13 25.9	23 0 54.14	8 32 26.5	1.0	8.9	0.65
July 1	16 29.7	23 7 45.11	−7 39 49.2	1.0	8.4	0.60	16	13 21.7	23 0 38.93	−8 34 9.6	1.0	8.9	0.65
2	16 25.7	23 7 43.19	7 40 17.1	1.0	8.4	0.61	17	13 17.5	23 0 23.56	8 35 53.5	1.0	8.9	0.65
3	16 21.8	23 7 40.90	7 40 47.2	1.0	8.5	0.61	18	13 13.3	23 0 8.02	8 37 38.2	1.0	8.9	0.65
4	16 17.8	23 7 38.25	7 41 19.6	1.0	8.5	0.61	19	13 9.2	22 59 52.32	8 39 23.5	1.0	8.9	0.65
5	16 13.8	23 7 35.24	7 41 54.2	1.0	8.5	0.61	20	13 5.0	22 59 36.48	8 41 9.4	1.0	9.0	0.65
6	16 9.8	23 7 31.87	−7 42 30.9	1.0	8.5	0.61	21	13 0.8	22 59 20.51	−8 42 55.9	1.0	9.0	0.65
7	16 5.8	23 7 28.14	7 43 9.9	1.0	8.5	0.61	22	12 56.6	22 59 4.40	8 44 42.9	1.0	9.0	0.65
8	16 1.8	23 7 24.06	7 43 50.9	1.0	8.5	0.61	23	12 52.4	22 58 48.17	8 46 30.3	1.0	9.0	0.65
9	15 57.8	23 7 19.62	7 44 34.1	1.0	8.5	0.61	24	12 48.2	22 58 31.84	8 48 18.0	1.0	9.0	0.65
10	15 53.8	23 7 14.82	7 45 19.5	1.0	8.5	0.61	25	12 44.0	22 58 15.40	8 50 6.1	1.0	9.0	0.65
11	15 49.8	23 7 9.67	−7 46 7.0	1.0	8.6	0.62	26	12 39.8	22 57 58.85	−8 51 54.5	1.0	9.0	0.65
12	15 45.7	23 7 4.16	7 46 56.5	1.0	8.6	0.62	27	12 35.6	22 57 42.22	8 53 43.1	1.0	9.0	0.65
13	15 41.7	23 6 58.30	7 47 48.1	1.0	8.6	0.62	28	12 31.4	22 57 25.52	8 55 31.8	1.0	9.0	0.65
14	15 37.7	23 6 52.10	7 48 41.8	1.0	8.6	0.62	29	12 27.1	22 57 8.76	8 57 20.6	1.0	9.0	0.65
15	15 33.6	23 6 45.56	7 49 37.6	1.0	8.6	0.62	30	12 22.9	22 56 51.92	8 59 9.5	1.0	9.0	0.65
16	15 29.6	23 6 38.69	−7 50 35.3	1.0	8.6	0.62	31	12 18.7	22 56 35.03	−9 0 58.4	1.0	9.0	0.65
17	15 25.5	23 6 31.47	−7 51 35.1	1.0	8.6	0.62	Sept. 1	12 14.5	22 56 18.11	−9° 2 47.1	1.0	9.0	0.65

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Sept. 1	12 14.5	22 56 18.11	− 9 2 47.1	1.0	9.0	0.65	Oct. 16	9 6.5	22 45 11.26	−10 9 15.2	1.0	8.7	0.64
2	12 10.3	22 56 1.15	9 4 35.7	1.0	9.0	0.65	17	9 2.4	22 45 1.43	10 10 7.4	1.0	8.7	0.64
3	12 6.0	22 55 44.16	9 6 24.3	1.0	9.0	0.65	18	8 58.3	22 44 51.92	10 10 57.5	1.0	8.7	0.63
4	12 1.8	22 55 27.15	9 8 12.6	1.0	9.0	0.65	19	8 54.2	22 44 42.75	10 11 45.4	1.0	8.7	0.63
5	11 57.6	22 55 10.14	9 10 0.6	1.0	9.0	0.65	20	8 50.1	22 44 33.91	10 12 31.2	1.0	8.7	0.63
6	11 53.4	22 54 53.12	− 9 11 48.3	1.0	9.0	0.65	21	8 46.1	22 44 25.41	−10 13 14.8	1.0	8.7	0.63
7	11 49.2	22 54 36.11	9 13 35.6	1.0	9.0	0.65	22	8 42.0	22 44 17.27	10 13 56.1	1.0	8.7	0.63
8	11 45.0	22 54 19.11	9 15 22.4	1.0	9.0	0.65	23	8 37.9	22 44 9.47	10 14 35.2	1.0	8.7	0.63
9	11 40.8	22 54 2.13	9 17 8.7	1.0	9.0	0.65	24	8 33.9	22 44 2.00	10 15 12.0	1.0	8.6	0.63
10	11 36.6	22 53 45.18	9 18 54.5	1.0	9.0	0.65	25	8 29.8	22 43 54.88	10 15 46.6	1.0	8.6	0.63
11	11 32.3	22 53 28.28	− 9 20 39.8	1.0	9.0	0.65	26	8 25.8	22 43 48.13	−10 16 18.8	1.0	8.6	0.63
12	11 28.1	22 53 11.44	9 22 24.4	1.0	9.0	0.65	27	8 21.7	22 43 41.75	10 16 48.7	1.0	8.6	0.63
13	11 23.9	22 52 54.66	9 24 8.3	1.0	9.0	0.65	28	8 17.7	22 43 35.73	10 17 16.3	1.0	8.6	0.63
14	11 19.7	22 52 37.96	9 25 51.3	1.0	9.0	0.65	29	8 13.7	22 43 30.07	10 17 41.7	1.0	8.6	0.63
15	11 15.5	22 52 21.32	9 27 33.5	1.0	9.0	0.65	30	8 9.7	22 43 24.78	10 18 4.7	1.0	8.6	0.63
16	11 11.3	22 52 4.77	− 9 29 14.9	1.0	9.0	0.65	31	8 5.6	22 43 19.87	−10 18 25.3	1.0	8.6	0.63
17	11 7.1	22 51 48.33	9 30 55.3	1.0	9.0	0.65	Nov. 1	8 1.6	22 43 15.32	10 18 43.6	1.0	8.5	0.62
18	11 2.9	22 51 32.00	9 32 34.8	1.0	9.0	0.65	2	7 57.6	22 43 11.15	10 18 59.5	1.0	8.5	0.62
19	10 58.7	22 51 15.78	9 34 13.2	1.0	9.0	0.65	3	7 53.6	22 43 7.36	10 19 13.1	1.0	8.5	0.62
20	10 54.5	22 50 59.68	9 35 50.6	1.0	9.0	0.65	4	7 49.6	22 43 3.95	10 19 24.2	1.0	8.5	0.62
21	10 50.3	22 50 43.72	− 9 37 26.8	1.0	9.0	0.65	5	7 45.7	22 43 0.92	−10 19 33.0	1.0	8.5	0.62
22	10 46.1	22 50 27.90	9 39 1.7	1.0	9.0	0.65	6	7 41.7	22 42 58.27	10 19 39.5	1.0	8.5	0.62
23	10 41.9	22 50 12.24	9 40 35.4	1.0	9.0	0.65	7	7 37.7	22 42 56.01	10 19 43.5	1.0	8.5	0.62
24	10 37.7	22 49 56.74	9 42 7.8	1.0	9.0	0.65	8	7 33.7	22 42 54.14	10 19 45.1	1.0	8.5	0.62
25	10 33.5	22 49 41.41	9 43 39.0	1.0	8.9	0.65	9	7 29.8	22 42 52.66	10 19 44.3	1.0	8.5	0.61
26	10 29.4	22 49 26.25	− 9 45 8.8	1.0	8.9	0.65	10	7 25.9	22 42 51.57	−10 19 41.2	1.0	8.4	0.61
27	10 25.2	22 49 11.28	9 46 37.1	1.0	8.9	0.65	11	7 21.9	22 42 50.88	10 19 35.6	1.0	8.4	0.61
28	10 21.0	22 48 56.50	9 48 4.0	1.0	8.9	0.65	12	7 18.0	22 42 50.58	10 19 27.6	0.9	8.4	0.61
29	10 16.8	22 48 41.92	9 49 29.3	1.0	8.9	0.64	13	7 14.1	22 42 50.68	10 19 17.2	0.9	8.4	0.61
30	10 12.7	22 48 27.55	9 50 53.1	1.0	8.9	0.64	14	7 10.1	22 42 51.16	10 19 4.5	0.9	8.4	0.61
Oct. 1	10 8.5	22 48 13.38	− 9 52 15.3	1.0	8.9	0.64	15	7 6.2	22 42 52.05	−10 18 49.2	0.9	8.4	0.61
2	10 4.3	22 47 59.44	9 53 36.0	1.0	8.9	0.64	16	7 2.3	22 42 53.34	10 18 31.5	0.9	8.3	0.60
3	10 0.2	22 47 45.74	9 54 55.0	1.0	8.9	0.64	17	6 58.4	22 42 55.02	10 18 11.4	0.9	8.3	0.60
4	9 56.0	22 47 32.27	9 56 12.2	1.0	8.9	0.64	18	6 54.5	22 42 57.10	10 17 49.0	0.9	8.3	0.60
5	9 51.9	22 47 19.02	9 57 27.8	1.0	8.9	0.64	19	6 50.6	22 42 59.59	10 17 24.1	0.9	8.3	0.60
6	9 47.7	22 47 6.02	− 9 58 41.6	1.0	8.8	0.64	20	6 46.7	22 43 2.46	−10 16 56.8	0.9	8.3	0.60
7	9 43.6	22 46 53.29	9 59 53.6	1.0	8.8	0.64	21	6 42.8	22 43 5.73	10 16 27.2	0.9	8.3	0.60
8	9 39.5	22 46 40.83	10 1 3.8	1.0	8.8	0.64	22	6 39.0	22 43 9.40	10 15 55.1	0.9	8.3	0.60
9	9 35.3	22 46 28.63	10 2 12.1	1.0	8.8	0.64	23	6 35.1	22 43 13.46	10 15 20.8	0.9	8.2	0.59
10	9 31.2	22 46 16.69	10 3 18.5	1.0	8.8	0.64	24	6 31.3	22 43 17.92	10 14 44.1	0.9	8.2	0.59
11	9 27.0	22 46 5.05	−10 4 23.0	1.0	8.8	0.64	25	6 27.4	22 43 22.77	−10 14 4.9	0.9	8.2	0.59
12	9 22.9	22 45 53.70	10 5 25.5	1.0	8.8	0.64	26	6 23.6	22 43 28.00	10 13 23.4	0.9	8.2	0.59
13	9 18.8	22 45 42.63	10 6 26.0	1.0	8.8	0.64	27	6 19.7	22 43 33.62	10 12 39.7	0.9	8.2	0.59
14	9 14.7	22 45 31.86	10 7 24.5	1.0	8.8	0.64	28	6 15.8	22 43 39.62	10 11 53.7	0.9	8.2	0.59
15	9 10.6	22 45 21.40	10 8 20.9	1.0	8.8	0.64	29	6 12.0	22 43 46.01	10 11 5.4	0.9	8.2	0.59
16	9 6.5	22 45 11.26	−10 9 15.2	1.0	8.7	0.64	30	6 8.2	22 43 52.79	−10 10 14.9	0.9	8.1	0.58
17	9 2.4	22 45 1.43	−10 10 7.4	1.0	8.7	0.64	Dec. 1	6 4.4	22 43 59.94	−10 9 22.0	0.9	8.1	0.58

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid.T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Apr. 1	17 57.3	18 36 49.69	−23 28 11.9	0.5	1.7	0.13	May 17	14 54.5	18 34 55.54	−23 30 51.9	0.5	1.8	0.13
2	17 53.4	18 36 52.03	23 28 11.3	0.5	1.7	0.13	18	14 50.5	18 34 48.50	23 30 58.9	0.5	1.8	0.13
3	17 49.5	18 36 54.16	23 28 10.8	0.5	1.7	0.13	19	14 46.4	18 34 41.30	23 31 6.1	0.5	1.8	0.13
4	17 45.6	18 36 56.06	23 28 10.5	0.5	1.7	0.13	20	14 42.4	18 34 33.95	23 31 13.3	0.5	1.8	0.13
5	17 41.7	18 36 57.74	23 28 10.5	0.5	1.7	0.13	21	14 38.3	18 34 26.45	23 31 20.6	0.5	1.8	0.13
6	17 37.8	18 36 59.20	−23 28 10.7	0.5	1.7	0.13	22	14 34.3	18 34 18.80	−23 31 28.0	0.5	1.8	0.13
7	17 33.8	18 37 0.43	23 28 11.0	0.5	1.7	0.13	23	14 30.2	18 34 10.99	23 31 35.4	0.5	1.8	0.13
8	17 29.9	18 37 1.43	23 28 11.5	0.5	1.7	0.13	24	14 26.1	18 34 3.04	23 31 42.9	0.5	1.8	0.13
9	17 26.0	18 37 2.21	23 28 12.2	0.5	1.7	0.13	25	14 22.1	18 33 54.96	23 31 50.6	0.5	1.8	0.13
10	17 22.1	18 37 2.77	23 28 13.1	0.5	1.7	0.13	26	14 18.0	18 33 46.74	23 31 58.4	0.5	1.8	0.13
11	17 18.2	18 37 3.12	−23 28 14.2	0.5	1.7	0.13	27	14 13.9	18 33 38.39	−23 32 6.2	0.5	1.8	0.13
12	17 14.3	18 37 3.24	23 28 15.5	0.5	1.8	0.13	28	14 9.8	18 33 29.91	23 32 14.0	0.5	1.8	0.13
13	17 10.3	18 37 3.14	23 28 17.1	0.5	1.8	0.13	29	14 5.8	18 33 21.30	23 32 21.9	0.5	1.8	0.13
14	17 6.4	18 37 2.82	23 28 18.9	0.5	1.8	0.13	30	14 1.7	18 33 12.56	23 32 29.9	0.5	1.8	0.13
15	17 2.4	18 37 2.28	23 28 20.8	0.5	1.8	0.13	31	13 57.6	18 33 3.71	23 32 37.9	0.5	1.8	0.13
16	16 58.5	18 37 1.53	−23 28 22.9	0.5	1.8	0.13	June 1	13 53.5	18 32 54.74	−23 32 45.9	0.5	1.8	0.13
17	16 54.5	18 37 0.55	23 28 25.1	0.5	1.8	0.13	2	13 49.4	18 32 45.65	23 32 54.0	0.5	1.8	0.13
18	16 50.6	18 36 59.35	23 28 27.5	0.5	1.8	0.13	3	13 45.4	18 32 36.46	23 33 2.2	0.5	1.8	0.13
19	16 46.6	18 36 57.93	23 28 30.1	0.5	1.8	0.13	4	13 41.3	18 32 27.18	23 33 10.4	0.5	1.8	0.13
20	16 42.7	18 36 56.29	23 28 32.9	0.5	1.8	0.13	5	13 37.2	18 32 17.80	23 33 18.6	0.5	1.8	0.13
21	16 38.7	18 36 54.43	−23 28 35.9	0.5	1.8	0.13	6	13 33.1	18 32 8.32	−23 33 26.8	0.5	1.8	0.13
22	16 34.8	18 36 52.36	23 28 39.1	0.5	1.8	0.13	7	13 29.0	18 31 58.73	23 33 35.0	0.5	1.8	0.13
23	16 30.8	18 36 50.08	23 28 42.5	0.5	1.8	0.13	8	13 24.9	18 31 49.06	23 33 43.3	0.5	1.8	0.13
24	16 26.8	18 36 47.59	23 28 46.2	0.5	1.8	0.13	9	13 20.8	18 31 39.31	23 33 51.6	0.5	1.8	0.13
25	16 22.8	18 36 44.88	23 28 50.0	0.5	1.8	0.13	10	13 16.7	18 31 29.47	23 33 59.9	0.5	1.8	0.13
26	16 18.8	18 36 41.96	−23 28 53.9	0.5	1.8	0.13	11	13 12.6	18 31 19.56	−23 34 8.2	0.5	1.8	0.13
27	16 14.9	18 36 38.83	23 28 58.0	0.5	1.8	0.13	12	13 8.5	18 31 9.57	23 34 16.5	0.5	1.8	0.13
28	16 10.9	18 36 35.50	23 29 2.3	0.5	1.8	0.13	13	13 4.4	18 30 59.51	23 34 24.8	0.5	1.8	0.13
29	16 6.9	18 36 31.96	23 29 6.7	0.5	1.8	0.13	14	13 0.3	18 30 49.38	23 34 33.1	0.5	1.8	0.13
30	16 2.9	18 36 28.22	23 29 11.3	0.5	1.8	0.13	15	12 56.2	18 30 39.19	23 34 41.3	0.5	1.8	0.13
May 1	15 58.9	18 36 24.28	−23 29 16.1	0.5	1.8	0.13	16	12 52.1	18 30 28.94	−23 34 49.5	0.5	1.8	0.13
2	15 54.9	18 36 20.13	23 29 21.1	0.5	1.8	0.13	17	12 48.0	18 30 18.65	23 34 57.7	0.5	1.8	0.13
3	15 50.9	18 36 15.78	23 29 26.2	0.5	1.8	0.13	18	12 43.9	18 30 8.31	23 35 5.9	0.5	1.8	0.13
4	15 46.9	18 36 11.25	23 29 31.4	0.5	1.8	0.13	19	12 39.8	18 29 57.92	23 35 14.0	0.5	1.8	0.13
5	15 42.9	18 36 6.53	23 29 36.7	0.5	1.8	0.13	20	12 35.7	18 29 47.50	23 35 22.1	0.5	1.8	0.13
6	15 38.9	18 36 1.61	−23 29 42.2	0.5	1.8	0.13	21	12 31.6	18 29 37.06	−23 35 30.2	0.5	1.8	0.13
7	15 34.8	18 35 56.51	23 29 47.9	0.5	1.8	0.13	22	12 27.5	18 29 26.57	23 35 38.3	0.5	1.8	0.13
8	15 30.8	18 35 51.22	23 29 53.7	0.5	1.8	0.13	23	12 23.4	18 29 16.04	23 35 46.3	0.5	1.8	0.13
9	15 26.8	18 35 45.74	23 29 59.7	0.5	1.8	0.13	24	12 19.3	18 29 5.50	23 35 54.2	0.5	1.8	0.13
10	15 22.8	18 35 40.07	23 30 5.8	0.5	1.8	0.13	25	12 15.2	18 28 54.95	23 36 2.1	0.5	1.8	0.13
11	15 18.7	18 35 34.23	−23 30 12.0	0.5	1.8	0.13	26	12 11.1	18 28 44.39	−23 36 10.0	0.5	1.8	0.13
12	15 14.7	18 35 28.21	23 30 18.4	0.5	1.8	0.13	27	12 7.0	18 28 33.81	23 36 17.8	0.5	1.8	0.13
13	15 10.7	18 35 22.01	23 30 24.9	0.5	1.8	0.13	28	12 2.9	18 28 23.23	23 36 25.5	0.5	1.8	0.13
14	15 6.6	18 35 15.64	23 30 31.5	0.5	1.8	0.13	29	11 58.7	18 28 12.65	23 36 33.2	0.5	1.8	0.13
15	15 2.6	18 35 9.11	23 30 38.2	0.5	1.8	0.13	30	11 54.6	18 28 2.08	23 36 40.8	0.5	1.8	0.13
16	14 58.6	18 35 2.41	−23 30 45.0	0.5	1.8	0.13	July 1	11 50.5	18 27 51.51	−23 36 48.3	0.5	1.8	0.13
17	14 54.5	18 34 55.54	−23 30 51.9	0.5	1.8	0.13	2	11 46.4	18 27 40.96	−23 36 55.8	0.5	1.8	0.13

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
July 1	11 50.5	18 27 51.51	−23 36 48.3	0.5	1.8	0.13	Aug. 16	8 42.9	18 21 5.15	−23 40 50.4	0.5	1.8	0.13
2	11 46.4	18 27 40.96	23 36 55.8	0.5	1.8	0.13	17	8 38.9	18 20 59.43	23 40 53.0	0.5	1.8	0.13
3	11 42.3	18 27 30.42	23 37 3.2	0.5	1.8	0.13	18	8 34.9	18 20 53.89	23 40 55.5	0.5	1.8	0.13
4	11 38.2	18 27 19.91	23 37 10.5	0.5	1.8	0.13	19	8 30.9	18 20 48.54	23 40 57.9	0.5	1.8	0.13
5	11 34.1	18 27 9.42	23 37 17.7	0.5	1.8	0.13	20	8 26.8	18 20 43.38	23 41 0.2	0.5	1.8	0.13
6	11 30.6	18 26 58.96	−23 37 24.8	0.5	1.8	0.13	21	8 22.8	18 20 38.40	−23 41 2.4	0.5	1.8	0.13
7	11 25.9	18 26 48.54	23 37 31.9	0.5	1.8	0.13	22	8 18.8	18 20 33.61	23 41 4.5	0.5	1.8	0.13
8	11 21.8	18 26 38.15	23 37 38.9	0.5	1.8	0.13	23	8 14.8	18 20 29.02	23 41 6.4	0.5	1.8	0.13
9	11 17.7	18 26 27.80	23 37 45.9	0.5	1.8	0.13	24	8 10.8	18 20 24.63	23 41 8.2	0.5	1.8	0.13
10	11 13.6	18 26 17.49	23 37 52.8	0.5	1.8	0.13	25	8 6.8	18 20 20.43	23 41 9.9	0.5	1.8	0.13
11	11 9.5	18 26 7.24	−23 37 59.5	0.5	1.8	0.13	26	8 2.8	18 20 16.44	−23 41 11.5	0.5	1.8	0.13
12	11 5.4	18 25 57.05	23 38 6.1	0.5	1.8	0.13	27	7 58.8	18 20 12.64	23 41 13.0	0.5	1.8	0.13
13	11 1.3	18 25 46.91	23 38 12.6	0.5	1.8	0.13	28	7 54.8	18 20 9.05	23 41 14.4	0.5	1.8	0.13
14	10 57.2	18 25 36.83	23 38 19.0	0.5	1.8	0.13	29	7 50.8	18 20 5.67	23 41 15.7	0.5	1.8	0.13
15	10 53.1	18 25 26.81	23 38 25.3	0.5	1.8	0.13	30	7 46.8	18 20 2.49	23 41 16.9	0.5	1.8	0.13
16	10 49.0	18 25 16.87	−23 38 31.6	0.5	1.8	0.13	31	7 42.9	18 19 59.51	−23 41 18.0	0.5	1.8	0.13
17	10 44.9	18 25 7.01	23 38 37.8	0.5	1.8	0.13	Sept. 1	7 38.9	18 19 56.74	23 41 19.0	0.5	1.8	0.13
18	10 40.8	18 24 57.23	23 38 43.9	0.5	1.8	0.13	2	7 34.9	18 19 54.17	23 41 19.9	0.5	1.8	0.13
19	10 36.7	18 24 47.54	23 38 49.8	0.5	1.8	0.13	3	7 30.9	18 19 51.81	23 41 20.7	0.5	1.8	0.13
20	10 32.6	18 24 37.93	23 38 55.6	0.5	1.8	0.13	4	7 27.0	18 19 49.66	23 41 21.3	0.5	1.8	0.13
21	10 28.5	18 24 28.41	−23 39 1.3	0.5	1.8	0.13	5	7 23.0	18 19 47.73	−23 41 21.8	0.5	1.8	0.13
22	10 24.4	18 24 19.00	23 39 6.9	0.5	1.8	0.13	6	7 19.0	18 19 46.01	23 41 22.2	0.5	1.8	0.13
23	10 20.4	18 24 9.69	23 39 12.4	0.5	1.8	0.13	7	7 15.1	18 19 44.50	23 41 22.4	0.5	1.8	0.13
24	10 16.3	18 24 0.47	23 39 17.8	0.5	1.8	0.13	8	7 11.1	18 19 43.22	23 41 22.5	0.5	1.8	0.13
25	10 12.2	18 23 51.35	23 39 23.1	0.5	1.8	0.13	9	7 7.2	18 19 42.16	23 41 22.5	0.5	1.8	0.13
26	10 8.1	18 23 42.35	−23 39 28.2	0.5	1.8	0.13	10	7 3.2	18 19 41.31	−23 41 22.5	0.5	1.8	0.13
27	10 4.0	18 23 33.47	23 39 33.2	0.5	1.8	0.13	11	6 59.3	18 19 40.68	23 41 22.4	0.5	1.8	0.13
28	9 59.9	18 23 24.71	23 39 38.2	0.5	1.8	0.13	12	6 55.4	18 19 40.27	23 41 22.2	0.5	1.7	0.13
29	9 55.9	18 23 16.07	23 39 43.1	0.5	1.8	0.13	13	6 51.4	18 19 40.08	23 41 21.9	0.5	1.7	0.13
30	9 51.8	18 23 7.56	23 39 47.9	0.5	1.8	0.13	14	6 47.5	18 19 40.11	23 41 21.4	0.5	1.7	0.13
31	9 47.7	18 22 59.18	−23 39 52.5	0.5	1.8	0.13	15	6 43.5	18 19 40.37	−23 41 20.8	0.5	1.7	0.13
Aug. 1	9 43.7	18 22 50.93	23 39 57.0	0.5	1.8	0.13	16	6 39.6	18 19 40.86	23 41 20.1	0.5	1.7	0.13
2	9 39.6	18 22 42.82	23 40 1.4	0.5	1.8	0.13	17	6 35.7	18 19 41.56	23 41 19.3	0.5	1.7	0.13
3	9 35.5	18 22 34.84	23 40 5.6	0.5	1.8	0.13	18	6 31.8	18 19 42.48	23 41 18.4	0.5	1.7	0.13
4	9 31.5	18 22 27.01	23 40 9.8	0.5	1.8	0.13	19	6 27.9	18 19 43.62	23 41 17.4	0.5	1.7	0.13
5	9 27.4	18 22 19.32	−23 40 13.9	0.5	1.8	0.13	20	6 24.0	18 19 44.99	−23 41 16.2	0.5	1.7	0.13
6	9 23.3	18 22 11.78	23 40 17.8	0.5	1.8	0.13	21	6 20.1	18 19 46.58	23 41 15.0	0.5	1.7	0.13
7	9 19.3	18 22 4.39	23 40 21.5	0.5	1.8	0.13	22	6 16.2	18 19 48.40	23 41 13.7	0.5	1.7	0.13
8	9 15.2	18 21 57.16	23 40 25.1	0.5	1.8	0.13	23	6 12.3	18 19 50.44	23 41 12.3	0.5	1.7	0.13
9	9 11.2	18 21 50.08	23 40 28.7	0.5	1.8	0.13	24	6 8.4	18 19 52.71	23 41 10.7	0.5	1.7	0.13
10	9 7.1	18 21 43.15	−23 40 32.2	0.5	1.8	0.13	25	6 4.5	18 19 55.19	−23 41 9.0	0.5	1.7	0.13
11	9 3.1	18 21 36.40	23 40 35.6	0.5	1.8	0.13	26	6 0.6	18 19 57.89	23 41 7.2	0.5	1.7	0.13
12	8 59.1	18 21 29.81	23 40 38.8	0.5	1.8	0.13	27	5 56.7	18 20 0.82	23 41 5.4	0.5	1.7	0.13
13	8 55.0	18 21 23.39	23 40 41.9	0.5	1.8	0.13	28	5 52.8	18 20 3.97	23 41 3.5	0.5	1.7	0.13
14	8 51.0	18 21 17.13	23 40 44.9	0.5	1.8	0.13	29	5 49.0	18 20 7.34	23 41 1.4	0.5	1.7	0.13
15	8 47.0	18 21 11.05	−23 40 47.7	0.5	1.8	0.13	30	5 45.1	18 20 10.93	−23 40 59.2	0.5	1.7	0.13
16	8 42.9	18 21 5.15	−23 40 50.4	0.5	1.8	0.13	Oct. 1	5 41.2	18 20 14.74	−23 40 56.9	0.5	1.7	0.13

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Jan. 0	11 59.1	6 38 51.50	+22 10 45.0	0.3	1.3	0.10	Feb. 14	8 57.5	6 34 8.32	+22 15 57.6	0.3	1.3	0.09
1	11 55.0	6 38 44.20	22 10 52.5	0.3	1.3	0.10	15	8 53.5	6 34 3.95	22 16 3.3	0.3	1.3	0.09
2	11 51.0	6 38 36.90	22 11 0.0	0.3	1.3	0.10	16	8 49.5	6 33 59.70	22 16 8.9	0.3	1.3	0.09
3	11 46.9	6 38 29.61	22 11 7.6	0.3	1.3	0.10	17	8 45.5	6 33 55.57	22 16 14.4	0.3	1.3	0.09
4	11 42.9	6 38 22.34	22 11 15.1	0.3	1.3	0.10	18	8 41.5	6 33 51.57	22 16 19.8	0.3	1.3	0.09
5	11 38.8	6 38 15.09	+22 11 22.6	0.3	1.3	0.10	19	8 37.5	6 33 47.70	+22 16 25.2	0.3	1.3	0.09
6	11 34.7	6 38 7.85	22 11 30.1	0.3	1.3	0.10	20	8 33.5	6 33 43.95	22 16 30.5	0.3	1.3	0.09
7	11 30.7	6 38 0.62	22 11 37.6	0.3	1.3	0.10	21	8 29.5	6 33 40.33	22 16 35.7	0.3	1.3	0.09
8	11 26.6	6 37 53.42	22 11 45.1	0.3	1.3	0.10	22	8 25.5	6 33 36.83	22 16 40.8	0.3	1.3	0.09
9	11 22.6	6 37 46.25	22 11 52.6	0.3	1.3	0.10	23	8 21.5	6 33 33.46	22 16 45.7	0.3	1.3	0.09
10	11 18.5	6 37 39.10	+22 12 0.0	0.3	1.3	0.10	24	8 17.5	6 33 30.22	+22 16 50.6	0.3	1.3	0.09
11	11 14.5	6 37 31.98	22 12 7.5	0.3	1.3	0.10	25	8 13.5	6 33 27.11	22 16 55.4	0.3	1.3	0.09
12	11 10.5	6 37 24.90	22 12 14.9	0.3	1.3	0.10	26	8 9.5	6 33 24.13	22 17 0.1	0.3	1.3	0.09
13	11 6.4	6 37 17.86	22 12 22.3	0.3	1.3	0.10	27	8 5.5	6 33 21.29	22 17 4.6	0.3	1.3	0.09
14	11 2.4	6 37 10.86	22 12 29.6	0.3	1.3	0.10	28	8 1.6	6 33 18.59	22 17 9.1	0.3	1.3	0.09
15	10 58.3	6 37 3.90	+22 12 37.0	0.3	1.3	0.10	Mar. 1	7 57.6	6 33 16.02	+22 17 13.5	0.3	1.3	0.09
16	10 54.3	6 36 56.98	22 12 44.4	0.3	1.3	0.10	2	7 53.6	6 33 13.58	22 17 17.8	0.3	1.3	0.09
17	10 50.2	6 36 50.12	22 12 51.8	0.3	1.3	0.10	3	7 49.7	6 33 11.28	22 17 22.0	0.3	1.3	0.09
18	10 46.2	6 36 43.31	22 12 59.1	0.3	1.3	0.10	4	7 45.7	6 33 9.12	22 17 26.1	0.3	1.3	0.09
19	10 42.1	6 36 36.55	22 13 6.4	0.3	1.3	0.10	5	7 41.8	6 33 7.10	22 17 30.1	0.3	1.3	0.09
20	10 38.1	6 36 29.85	+22 13 13.6	0.3	1.3	0.10	6	7 37.8	6 33 5.22	+22 17 34.0	0.3	1.3	0.09
21	10 34.0	6 36 23.20	22 13 20.8	0.3	1.3	0.10	7	7 33.8	6 33 3.48	22 17 37.8	0.3	1.3	0.09
22	10 30.0	6 36 16.62	22 13 28.0	0.3	1.3	0.10	8	7 29.8	6 33 1.89	22 17 41.5	0.3	1.3	0.09
23	10 26.0	6 36 10.11	22 13 35.1	0.3	1.3	0.10	9	7 25.9	6 33 0.44	22 17 45.1	0.3	1.3	0.09
24	10 21.9	6 36 3.67	22 13 42.2	0.3	1.3	0.10	10	7 21.9	6 32 59.13	22 17 48.6	0.3	1.3	0.09
25	10 17.9	6 35 57.30	+22 13 49.3	0.3	1.3	0.10	11	7 18.0	6 32 57.95	+22 17 51.9	0.3	1.3	0.09
26	10 13.8	6 35 51.00	22 13 56.3	0.3	1.3	0.10	12	7 14.0	6 32 56.92	22 17 55.1	0.3	1.3	0.09
27	10 9.8	6 35 44.77	22 14 3.2	0.3	1.3	0.10	13	7 10.1	6 32 56.04	22 17 58.2	0.3	1.3	0.09
28	10 5.8	6 35 38.62	22 14 10.1	0.3	1.3	0.10	14	7 6.1	6 32 55.30	22 18 1.3	0.3	1.3	0.09
29	10 1.7	6 35 32.55	22 14 16.9	0.3	1.3	0.10	15	7 2.2	6 32 54.70	22 18 4.3	0.3	1.3	0.09
30	9 57.7	6 35 26.56	+22 14 23.7	0.3	1.3	0.10	16	6 58.3	6 32 54.26	+22 18 7.2	0.3	1.3	0.09
31	9 53.7	6 35 20.66	22 14 30.4	0.3	1.3	0.10	17	6 54.3	6 32 53.96	22 18 9.9	0.3	1.3	0.09
Feb. 1	9 49.7	6 35 14.85	22 14 37.0	0.3	1.3	0.10	18	6 50.4	6 32 53.80	22 18 12.5	0.3	1.3	0.09
2	9 45.6	6 35 9.13	22 14 43.6	0.3	1.3	0.10	19	6 46.4	6 32 53.78	22 18 15.0	0.3	1.3	0.09
3	9 41.6	6 35 3.50	22 14 50.1	0.3	1.3	0.10	20	6 42.5	6 32 53.91	22 18 17.5	0.3	1.3	0.09
4	9 37.6	6 34 57.97	+22 14 56.5	0.3	1.3	0.10	21	6 38.6	6 32 54.18	+22 18 19.7	0.3	1.3	0.09
5	9 33.6	6 34 52.54	22 15 2.9	0.3	1.3	0.10	22	6 34.7	6 32 54.60	22 18 21.8	0.3	1.3	0.09
6	9 29.5	6 34 47.21	22 15 9.2	0.3	1.3	0.10	23	6 30.7	6 32 55.17	22 18 23.8	0.3	1.3	0.09
7	9 25.5	6 34 41.98	22 15 15.5	0.3	1.3	0.10	24	6 26.8	6 32 55.89	22 18 25.8	0.3	1.3	0.09
8	9 21.5	6 34 36.85	22 15 21.7	0.3	1.3	0.10	25	6 22.9	6 32 56.75	22 18 27.6	0.3	1.3	0.09
9	9 17.5	6 34 31.82	+22 15 27.9	0.3	1.3	0.09	26	6 19.0	6 32 57.76	+22 18 29.3	0.3	1.3	0.09
10	9 13.5	6 34 26.90	22 15 34.0	0.3	1.3	0.09	27	6 15.1	6 32 58.92	22 18 30.8	0.3	1.3	0.09
11	9 9.5	6 34 22.09	22 15 40.0	0.3	1.3	0.09	28	6 11.2	6 33 0.22	22 18 32.2	0.3	1.3	0.09
12	9 5.5	6 34 17.39	22 15 45.9	0.3	1.3	0.09	29	6 7.3	6 33 1.67	22 18 33.5	0.3	1.3	0.09
13	9 1.5	6 34 12.80	22 15 51.8	0.3	1.3	0.09	30	6 3.3	6 33 3.26	22 18 34.7	0.3	1.3	0.09
14	8 57.5	6 34 8.32	+22 15 57.6	0.3	1.3	0.09	31	5 59.4	6 33 5.00	+22 18 35.9	0.3	1.3	0.09
15	8 53.5	6 34 3.95	+22 16 3.3	0.3	1.3	0.09	Apr. 1	5 55.5	6 33 6.88	+22 18 37.0	0.3	1.3	0.09

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.	Date.	Mean Time of Transit.	Apparent Right Ascension.	Apparent Declination.	Hor. Par.	Semi-diam.	Sid. T. of S.D. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Oct. 1	18 13.3	6 54 23.09	+21 58 4.1	0.3	1.3	0.09	Nov. 16	15 11.5	6 53 27.40	+21 58 23.9	0.3	1.3	0.09
2	18 9.4	6 54 25.07	21 58 0.3	0.3	1.3	0.09	17	15 7.5	6 53 23.04	21 58 28.7	0.3	1.3	0.09
3	18 5.5	6 54 26.91	21 57 56.7	0.3	1.3	0.09	18	15 3.5	6 53 18.57	21 58 33.6	0.3	1.3	0.09
4	18 1.6	6 54 28.61	21 57 53.2	0.3	1.3	0.09	19	14 59.5	6 53 13.99	21 58 38.7	0.3	1.3	0.09
5	17 57.7	6 54 30.17	21 57 49.9	0.3	1.3	0.09	20	14 55.5	6 53 9.30	21 58 44.0	0.3	1.3	0.09
6	17 53.8	6 54 31.59	+21 57 46.8	0.3	1.3	0.09	21	14 51.5	6 53 4.49	+21 58 49.4	0.3	1.3	0.09
7	17 49.9	6 54 32.86	21 57 43.9	0.3	1.3	0.09	22	14 47.5	6 52 59.57	21 58 54.9	0.3	1.3	0.09
8	17 45.9	6 54 33.99	21 57 41.2	0.3	1.3	0.09	23	14 43.4	6 52 54.55	21 59 0.5	0.3	1.3	0.09
9	17 42.0	6 54 34.97	21 57 38.6	0.3	1.3	0.09	24	14 39.4	6 52 49.43	21 59 6.3	0.3	1.3	0.09
10	17 38.1	6 54 35.81	21 57 36.2	0.3	1.3	0.09	25	14 35.4	6 52 44.21	21 59 12.4	0.3	1.3	0.09
11	17 34.2	6 54 36.50	+21 57 34.0	0.3	1.3	0.09	26	14 31.4	6 52 38.89	+21 59 18.6	0.3	1.3	0.09
12	17 30.3	6 54 37.05	21 57 32.0	0.3	1.3	0.09	27	14 27.4	6 52 33.47	21 59 24.9	0.3	1.3	0.09
13	17 26.4	6 54 37.45	21 57 30.3	0.3	1.3	0.09	28	14 23.3	6 52 27.95	21 59 31.3	0.3	1.3	0.09
14	17 22.4	6 54 37.70	21 57 28.7	0.3	1.3	0.09	29	14 19.3	6 52 22.33	21 59 37.8	0.3	1.3	0.09
15	17 18.5	6 54 37.81	21 57 27.3	0.3	1.3	0.09	30	14 15.3	6 52 16.62	21 59 44.5	0.3	1.3	0.09
16	17 14.6	6 54 37.78	+21 57 26.1	0.3	1.3	0.09	Dec. 1	14 11.2	6 52 10.83	+21 59 51.3	0.3	1.3	0.10
17	17 10.6	6 54 37.60	21 57 25.1	0.3	1.3	0.09	2	14 7.2	6 52 4.96	21 59 58.3	0.3	1.3	0.10
18	17 6.7	6 54 37.27	21 57 24.2	0.3	1.3	0.09	3	14 3.2	6 51 59.00	22 0 5.4	0.3	1.3	0.10
19	17 2.8	6 54 36.80	21 57 23.6	0.3	1.3	0.09	4	13 59.2	6 51 52.95	22 0 12.6	0.3	1.3	0.10
20	16 58.8	6 54 36.18	21 57 23.2	0.3	1.3	0.09	5	13 55.1	6 51 46.82	22 0 19.9	0.3	1.3	0.10
21	16 54.9	6 54 35.41	+21 57 23.0	0.3	1.3	0.09	6	13 51.1	6 51 40.61	+22 0 27.3	0.3	1.3	0.10
22	16 50.9	6 54 34.51	21 57 23.0	0.3	1.3	0.09	7	13 47.0	6 51 34.32	22 0 34.8	0.3	1.3	0.10
23	16 47.0	6 54 33.47	21 57 23.2	0.3	1.3	0.09	8	13 43.0	6 51 27.97	22 0 42.4	0.3	1.3	0.10
24	16 43.0	6 54 32.28	21 57 23.6	0.3	1.3	0.09	9	13 39.0	6 51 21.55	22 0 50.1	0.3	1.3	0.10
25	16 39.1	6 54 30.95	21 57 24.1	0.3	1.3	0.09	10	13 34.9	6 51 15.06	22 0 57.9	0.3	1.3	0.10
26	16 35.1	6 54 29.48	+21 57 24.8	0.3	1.3	0.09	11	13 30.9	6 51 8.50	+22 1 5.9	0.3	1.3	0.10
27	16 31.2	6 54 27.87	21 57 25.7	0.3	1.3	0.09	12	13 26.8	6 51 1.88	22 1 13.9	0.3	1.3	0.10
28	16 27.2	6 54 26.12	21 57 26.9	0.3	1.3	0.09	13	13 22.8	6 50 55.20	22 1 22.0	0.3	1.3	0.10
29	16 23.2	6 54 24.22	21 57 28.3	0.3	1.3	0.09	14	13 18.8	6 50 48.46	22 1 30.2	0.3	1.3	0.10
30	16 19.3	6 54 22.18	21 57 29.8	0.3	1.3	0.09	15	13 14.7	6 50 41.66	22 1 38.5	0.3	1.3	0.10
31	16 15.3	6 54 20.01	+21 57 31.5	0.3	1.3	0.09	16	13 10.7	6 50 34.81	+22 1 46.8	0.3	1.3	0.10
Nov. 1	16 11.3	6 54 17.71	21 57 33.4	0.3	1.3	0.09	17	13 6.6	6 50 27.91	22 1 55.2	0.3	1.3	0.10
2	16 7.4	6 54 15.28	21 57 35.5	0.3	1.3	0.09	18	13 2.6	6 50 20.97	22 2 3.7	0.3	1.3	0.10
3	16 3.4	6 54 12.70	21 57 37.8	0.3	1.3	0.09	19	12 58.5	6 50 13.99	22 2 12.3	0.3	1.3	0.10
4	15 59.4	6 54 9.99	21 57 40.2	0.3	1.3	0.09	20	12 54.5	6 50 6.96	22 2 20.9	0.3	1.3	0.10
5	15 55.4	6 54 7.14	+21 57 42.9	0.3	1.3	0.09	21	12 50.4	6 49 59.90	+22 2 29.5	0.3	1.3	0.10
6	15 51.4	6 54 4.16	21 57 45.7	0.3	1.3	0.09	22	12 46.4	6 49 52.81	22 2 38.2	0.3	1.3	0.10
7	15 47.5	6 54 1.05	21 57 48.7	0.3	1.3	0.09	23	12 42.3	6 49 45.68	22 2 47.0	0.3	1.3	0.10
8	15 43.5	6 53 57.81	21 57 51.9	0.3	1.3	0.09	24	12 38.3	6 49 38.52	22 2 55.9	0.3	1.3	0.10
9	15 39.5	6 53 54.45	21 57 55.3	0.3	1.3	0.09	25	12 34.2	6 49 31.34	22 3 4.7	0.3	1.3	0.10
10	15 35.5	6 53 50.97	+21 57 58.9	0.3	1.3	0.09	26	12 30.2	6 49 24.13	+22 3 13.6	0.3	1.3	0.10
11	15 31.5	6 53 47.34	21 58 2.7	0.3	1.3	0.09	27	12 26.1	6 49 16.90	22 3 22.6	0.3	1.3	0.10
12	15 27.5	6 53 43.59	21 58 6.6	0.3	1.3	0.09	28	12 22.1	6 49 9.66	22 3 31.7	0.3	1.3	0.10
13	15 23.5	6 53 39.72	21 58 10.7	0.3	1.3	0.09	29	12 18.0	6 49 2.41	22 3 40.8	0.3	1.3	0.10
14	15 19.5	6 53 35.74	21 58 14.9	0.3	1.3	0.09	30	12 14.0	6 48 55.15	22 3 49.9	0.3	1.3	0.10
15	15 15.5	6 53 31.63	+21 58 19.3	0.3	1.3	0.09	31	12 9.9	6 48 47.87	+22 3 59.0	0.3	1.3	0.10
16	15 11.5	6 53 27.40	+21 58 23.9	0.3	1.3	0.09	32	12 5.9	6 48 40.58	+22 4 8.1	0.3	1.3	0.10

PART III

PHENOMENA

ECLIPSES IN 1906.

In the year 1906 there will be five eclipses, three of the Sun and two of the Moon.

I.—*A Total Eclipse of the Moon*, 1906, February 8, visible at Washington; the beginning visible generally in North and South America and the western portions of Europe and Africa; the ending visible generally in North America, central and western South America, the northeast portions of Asia, and eastern Australia.

ELEMENTS OF THE ECLIPSE.

		d	h	m	s
Greenwich mean time of ☍ in right ascension,	February	8	19	49	58.5

	h m s		s
Sun's right ascension	21 28 21.59	Hourly motion	9.94
Moon's right ascension	9 28 21.59	Hourly motion	137.85
	° ′ ″		′ ″
Sun's declination	14 55 23.6 S.	Hourly motion	0 47.6 N.
Moon's declination	14 48 15.7 N.	Hourly motion	7 42.0 S.
Sun's equa. hor. parallax	8.9	Sun's true semidiameter	16 12.5
Moon's equa. hor. parallax	58 0.9	Moon's true semidiameter	15 47.7

CIRCUMSTANCES OF THE ECLIPSE.

		d	h	m	
Moon enters penumbra	February	8	16	54.1	Greenwich Mean Time.
Moon enters shadow		8	17	57.0	
Total eclipse begins		8	18	57.8	
Middle of the eclipse		8	19	47.0	
Total eclipse ends		8	20	36.2	
Moon leaves shadow		8	21	37.0	
Moon leaves penumbra		8	22	39.9	

Contacts of shadow with Moon's limb.	Angles of position from the north point.	The Moon being in the zenith in longitude from Greenwich.	and in latitude.
	°	° ′	° ′
First	96 to E.	86 40 W.	15 3 N.
Last	71 to W.	139 43 W.	14 34 N.

Magnitude of the eclipse = 1.631 (Moon's diameter = 1.0).

II.—*Partial Eclipse of the Sun*, 1906, February 22, invisible at Washington.

ELEMENTS OF THE ECLIPSE.

		d	h	m	s
Greenwich mean time of ☌ in right ascension,	February	22	19	3	44.3

	h m s		s s
Sun and Moon's R. A.	22 22 42.31	Hourly motions	9.53 and 126.61
	° ′ ″		′ ″
Sun's declination	10 7 47.2 S.	Hourly motion	0 54.7 N.
Moon's declination	11 20 40.5 S.	Hourly motion	8 58.0 N.
Sun's equa. hor. parallax	8.9	Sun's true semidiameter	16 9.6
Moon's equa. hor. parallax	56 21.9	Moon's true semidiameter	15 20.8

CIRCUMSTANCES OF THE ECLIPSE.

		Greenwich Mean Time.	Longitude from Greenwich.	Latitude.
		d h m	° ′	° ′
Eclipse begins	February	22 17 57.9	20 43.6 W.	66 48.6 S.
Greatest eclipse		22 19 43.3	170 8.3 W.	71 31.4 S.
Eclipse ends		22 21 29.1	138 50.5 E.	37 1.7 S.

Magnitude of greatest eclipse = 0.537 (Sun's diameter = 1.0).

III.—*Partial Eclipse of the Sun,* 1906, July 20–21, invisible at Washington.

ELEMENTS OF THE ECLIPSE.

		d	h	m	s
Greenwich mean time of ☌ in right ascension,	July	21	1	30	29.5

	h m s		s s
Sun and Moon's R. A.	7 59 45.06	Hourly motions	10.00 and 132.16
	° ′ ″		′ ″
Sun's declination	20 36 2.1 N.	Hourly motion	0 28.4 S.
Moon's declination	19 20 3.8 N.	Hourly motion	3 27.8 S.
Sun's equa. hor. parallax	8.7	Sun's true semidiameter	15 44.5
Moon's equa. hor. parallax	55 33.2	Moon's true semidiameter	15 7.5

CIRCUMSTANCES OF THE ECLIPSE.

	Greenwich Mean Time.	Longitude from Greenwich.	Latitude.
	d h m	° ′	° ′
Eclipse begins	July 20 23 48.7	58 26.1 W.	50 32.9 S.
Greatest eclipse	21 1 14.4	33 15.1 W.	68 37.2 S.
Eclipse ends	21 2 39.9	11 26.2 E.	59 44.8 S.

Magnitude of greatest eclipse = 0.335 (Sun's diameter = 1.0).

IV.—*A Total Eclipse of the Moon,* 1906, August 4, invisible at Washington; the beginning visible in the central and western portions of North America, the eastern portions of Asia and Australia, the ending visible in Alaska and throughout Asia and Australia.

ELEMENTS OF THE ECLIPSE.

		d	h	m	s
Greenwich mean time of ☍ in right ascension,	August	4	1	1	5.6

	h m s		s
Sun's right ascension	8 54 41.62	Hourly motion	9.65
Moon's right ascension	20 54 41.62	Hourly motion	145.09
	° ′ ″		′ ″
Sun's declination	17 25 7.0 N.	Hourly motion	0 39.5 S.
Moon's declination	17 22 17.4 S.	Hourly motion	6 31.2 N.
Sun's equa. hor. parallax	8.7	Sun's true semidiameter	15 46.0
Moon's equa. hor. parallax	58 54.5	Moon's true semidiameter	16 2.4

CIRCUMSTANCES OF THE ECLIPSE.

		d h m	
Moon enters penumbra	August	3 22 11.7	Greenwich Mean Time.
Moon enters shadow		3 23 10.5	
Total eclipse begins		4 0 9.3	
Middle of the eclipse		4 1 0.2	
Total eclipse ends		4 1 51.1	
Moon leaves shadow		4 2 49.8	
Moon leaves penumbra		4 3 48.6	

Contacts of shadow with Moon's limb.	Angles of position from the north point.	The Moon being in the zenith in longitude from Greenwich,	and in latitude.
	°	° ′	° ′
First	82 to E.	167 11 W.	17 34 S.
Last	103 to W.	140 3 E.	17 10 S.

Magnitude of the eclipse = 1.786 (Moon's diameter = 1.0).

V.—*Partial Eclipse of the Sun*, 1906, August 19, invisible at Washington.

ELEMENTS OF THE ECLIPSE.

Greenwich mean time of ☌ in right ascension, August $19^d\ 12^h\ 33^m\ 47^s.8$

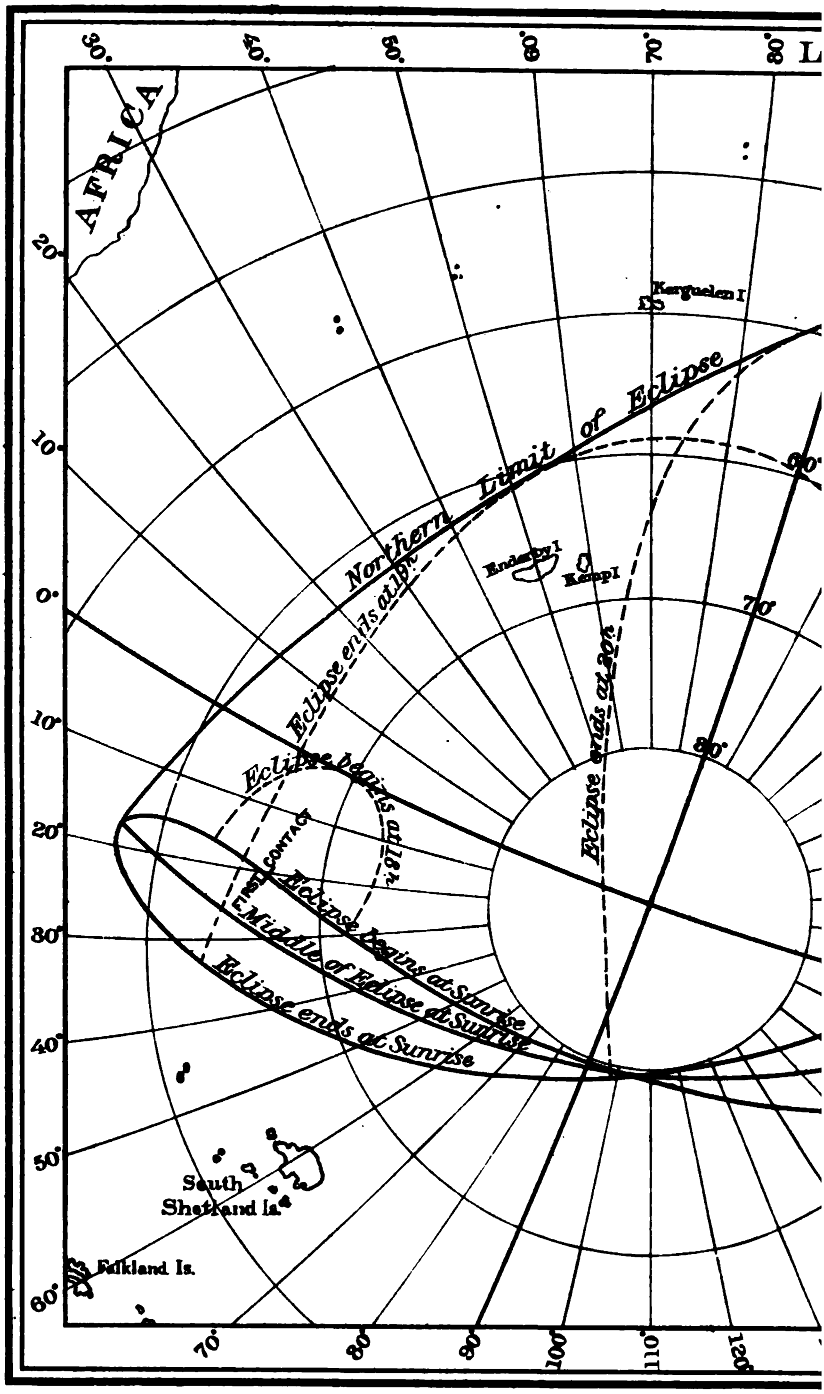
	h m s			s s	
Sun and Moon's R. A.	9 53 18.16		Hourly motions	9.30 and 131.86	
	° ′ ″			′ ″	
Sun's declination	12 49 52.6	N.	Hourly motion	0 48.9	S.
Moon's declination	14 10 30.8	N.	Hourly motion	8 22.8	S.
Sun's equa. hor. parallax	8.7		Sun's true semidiameter	15 48.5	
Moon's equa. hor. parallax	57 1.4		Moon's true semidiameter	15 31.6	

CIRCUMSTANCES OF THE ECLIPSE.

		Greenwich Mean Time.	Longitude from Greenwich.		Latitude.	
		d h m	° ′		° ′	
Eclipse begins	August	19 11 53.4	48 46.1	E.	71 46.1	N.
Greatest eclipse		19 13 12.9	66 13.0	W.	70 54.9	N.
Eclipse ends		19 14 32.7	113 22.5	W.	46 39.7	N.

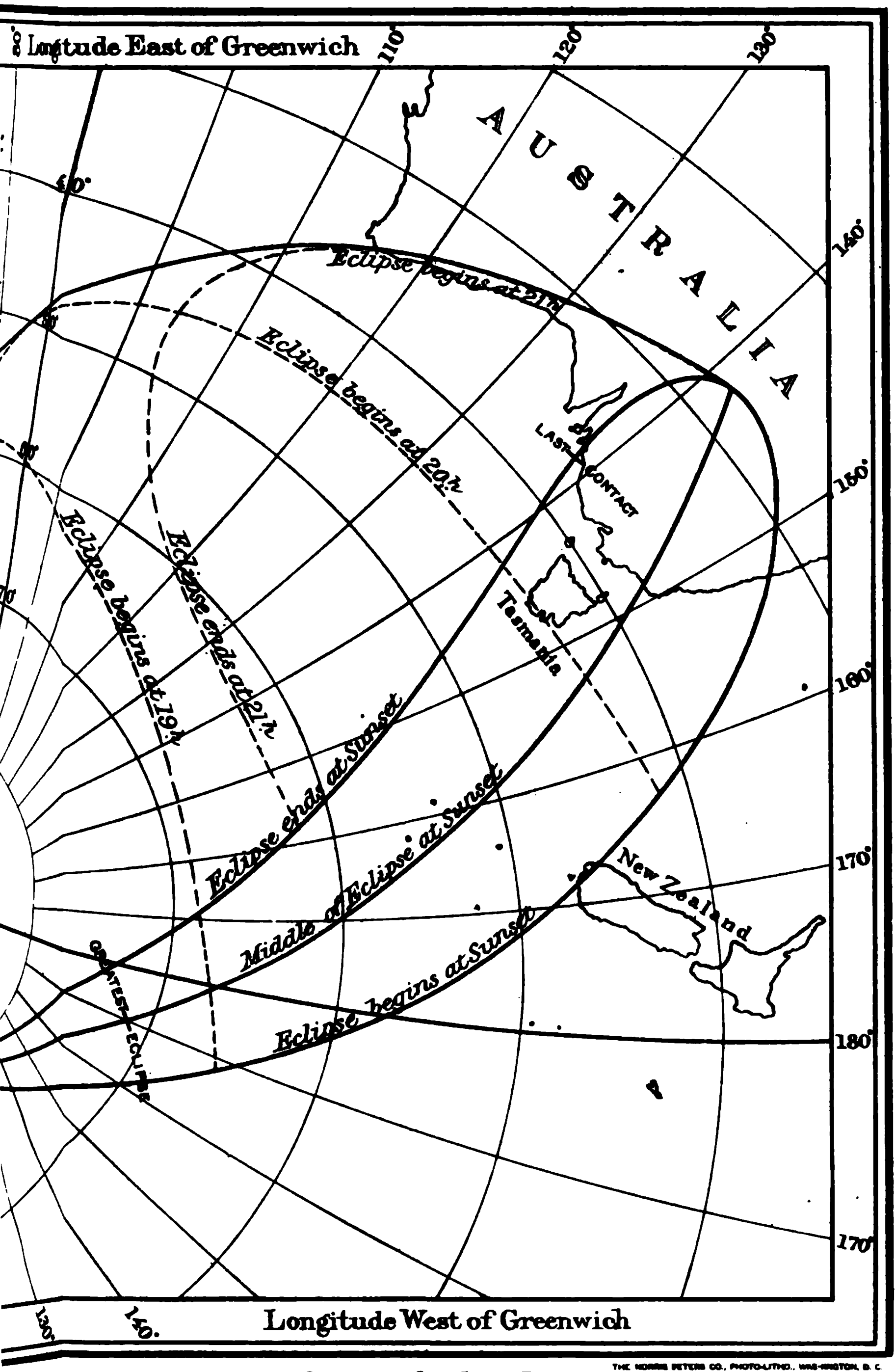
Magnitude of greatest eclipse = 0.314 (Sun's diameter = 1.0).

PARTIAL ECLIPSE O



Note: *The hours of beginning and en*

E OF THE SUN FEB. 22ND 1906.



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d ending are expressed in Greenwich Mean Time.

BESSELIAN ELEMENTS OF THE PARTIAL ECLIPSE OF THE SUN, 1906, FEBRUARY 22.

Greenwich Mean Time.	Co-ordinates of Center of Shadow on Fundamental Plane.		Direction of Axis of Shadow.			Radius of Penumbra on Fundamental Plane.
	x	y	Log sin d	Log cos d	μ	l
h m					° '	
17 40	−0.712 53	−1.495 52	−9·245 95	+9·993 15	261 35·0	+0.560 22
50	0.627 44	1.471 77	9·245 84	9·993 15	264 5·1	0.560 25
18 0	−0.542 35	−1.448 02	−9·245 74	+9·993 16	266 35·1	+0.560 27
10	0.457 26	1.424 27	9·245 64	9·993 16	269 5·1	0.560 30
20	0.372 17	1.400 51	9·245 54	9·993 16	271 35·1	0.560 32
30	0.287 08	1.376 74	9·245 43	9·993 17	274 5·2	0.560 34
40	0.201 99	1.352 97	9·245 32	9·993 17	276 35·2	0.560 36
50	0.116 90	1.329 19	9·245 22	9·993 17	279 5·2	0.560 38
19 0	−0.031 82	−1.305 40	−9·245 11	+9·993 18	281 35·2	+0.560 40
10	+0.053 26	1.281 61	9·245 01	9·993 18	284 5·3	0.560 42
20	0.138 35	1.257 81	9·244 91	9·993 19	286 35·3	0.560 44
30	0.223 43	1.234 00	9·244 80	9·993 19	289 5·3	0.560 46
40	0.308 51	1.210 19	9·244 70	9·993 20	291 35·4	0.560 48
50	0.393 58	1.186 37	9·244 60	9·993 20	294 5·4	0.560 50
20 0	+0.478 65	−1.162 55	−9·244 49	+9·993 20	296 35·4	+0.560 52
10	0.563 72	1.138 72	9·244 39	9·993 21	299 5·4	0.560 54
20	0.648 78	1.114 89	9·244 28	9·993 21	301 35·5	0.560 56
30	0.733 84	1.091 05	9·244 18	9·993 21	304 5·5	0.560 57
40	0.818 90	1.067 21	9·244 07	9·993 22	306 35·5	0.560 59
50	0.903 95	1.043 36	9·243 96	9·993 22	309 5·5	0.560 61
21 0	+0.989 00	−1.019 49	−9·243 86	+9·993 22	311 35·6	+0.560 62
10	1.074 05	0.995 63	9·243 76	9·993 22	314 5·6	0.560 64
20	1.159 09	0.971 76	9·243 65	9·993 23	316 35·6	0.560 65
30	+1.244 12	−0.947 88	−9·243 55	+9·993 23	319 5·6	+0.560 66

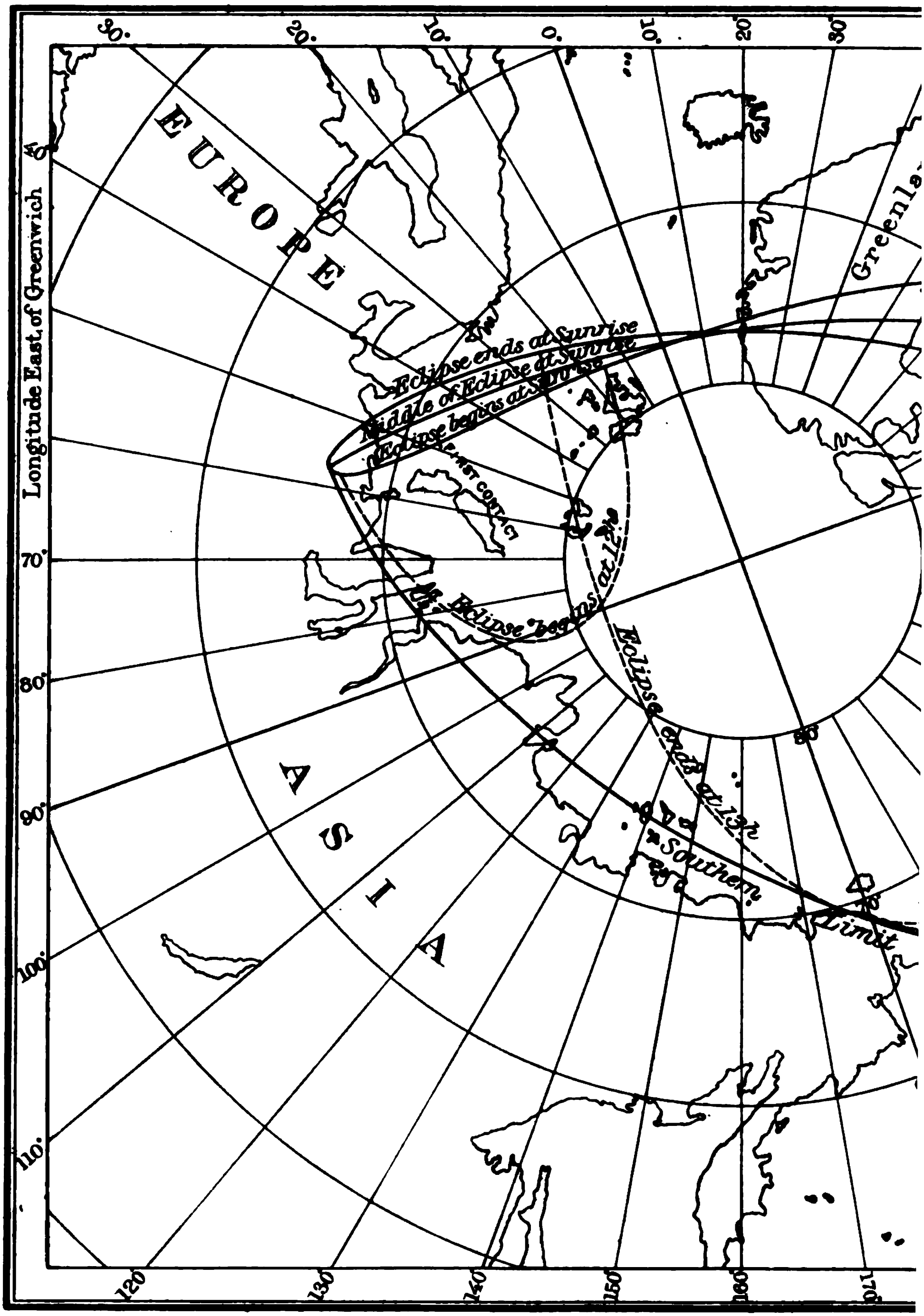
Greenwich Mean Time.	Log x' for 1 Minute.	Log y' for 1 Minute.	Log μ' for 1 Minute.	Log Tangent of Angle of Cone.
				Penumbra.
h				
17	+ 7·9299	+ 7·3748	+ 1.1762	+7·674 42
18	7·9299	7·3757	1.1762	7·674 42
19	7·9298	7·3764	1.1762	7·674 41
20	7·9298	7·3771	1.1762	7·674 41
21	+ 7·9297	+ 7·3778	+ 1.1762	+7·674 41

BESSELIAN ELEMENTS OF THE PARTIAL ECLIPSE OF THE SUN, 1906, JULY 20–21.

Greenwich Mean Time.	Co-ordinates of Center of Shadow on Fundamental Plane.		Direction of Axis of Shadow.			Radius of Penumbra on Fundamental Plane.
	x	y	Log sin d	Log cos d	μ	l
d h m					° ′	
July 20 23 40	− 0.957 79	− 1.272 85	+9.546 71	+9.971 25	353 27.9	+0.557 19
50	0.871 11	1.281 72	9.546 69	9.971 26	355 57.9	0.557 18
21 0 0	− 0.784 43	− 1.290 59	+9.546 66	+9.971 26	358 27.9	+0.557 16
10	0.697 75	1.299 47	9.546 64	9.971 26	0 57.9	0.557 15
20	0.611 07	1.308 35	9.546 61	9.971 27	3 27.9	0.557 14
30	0.524 38	1.317 23	9.546 58	9.971 27	5 57.9	0.557 12
40	0.437 70	1.326 12	9.546 56	9.971 27	8 27.9	0.557 11
50	0.351 01	1.335 01	9.546 53	9.971 28	10 57.9	0.557 09
1 0	− 0.264 32	− 1.343 91	+9.546 50	+9.971 28	13 27.9	+0.557 08
10	0.177 63	1.352 81	9.546 48	9.971 28	15 57.9	0.557 06
20	0.090 95	1.361 71	9.546 45	9.971 29	18 27.9	0.557 05
30	− 0.004 26	1.370 62	9.546 43	9.971 29	20 57.9	0.557 03
40	+ 0.082 43	1.379 54	9.546 40	9.971 30	23 27.9	0.557 01
50	0.169 12	1.388 46	9.546 37	9.971 30	25 57.9	0.557 00
2 0	+ 0.255 81	− 1.397 38	+9.546 35	+9.971 30	28 28.0	+0.556 98
10	0.342 50	1.406 31	9.546 32	9.971 31	30 58.0	0.556 96
20	0.429 19	1.415 24	9.546 30	9.971 31	33 28.0	0.556 94
30	0.515 87	1.424 18	9.546 27	9.971 31	35 58.0	0.556 92
40	0.602 56	1.433 12	9.546 24	9.971 32	38 28.0	0.556 90
50	+ 0.689 25	− 1.442 06	+9.546 22	+9.971 32	40 58.0	+0.556 87

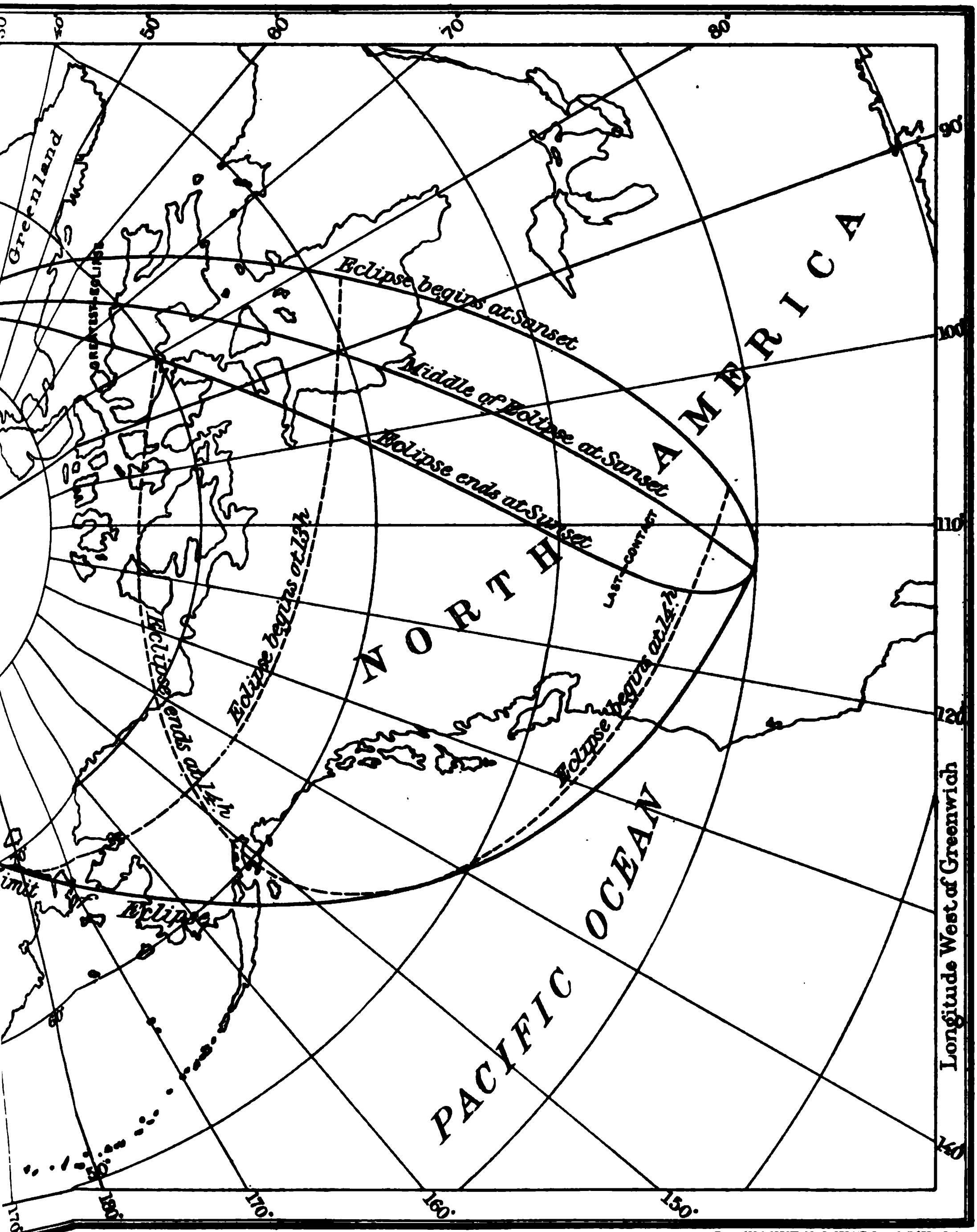
Greenwich Mean Time.	Log x' for 1 Minute.	Log y' for 1 Minute.	Log μ' for 1 Minute.	Log Tangent of Angle of Cone.
				Penumbra.
d h m				
July 20 23 0	+7.9379	−6.9468	+1.1761	+7.662 98
21 0 0	7.9379	6.9481	1.1761	7.662 98
1 0	7.9380	6.9493	1.1761	7.662 98
2 0	7.9380	6.9505	1.1761	7.662 99
3 0	+ 7.9379	−6.9517	+1.1761	+7.662 99

PARTIAL ECLIPSE O



Note: *The hours of beginning and endi*

E OF THE SUN AUG. 19TH 1906.



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ending are expressed in Greenwich Mean Time.

BESSELIAN ELEMENTS OF THE PARTIAL ECLIPSE OF THE SUN, 1906, AUGUST 19.

Greenwich Mean Time.	Co-ordinates of Center of Shadow on Fundamental Plane.		Direction of Axis of Shadow.			Radius of Penumbra on Fundamental Plane.
	x	*y*	Log sin *d*	Log cos *d*	*μ*	*l*
h m					° ′	
11 50	− 0.381 30	+ 1.515 04	+ 9.346 72	+ 9.989 01	176 36.8	+ 0.550 90
12 0	− 0.294 24	+ 1.492 81	+ 9.346 65	+ 9.989 01	179 6.8	+ 0.550 88
10	0.207 18	1.470 57	9.346 57	9.989 01	181 36.9	0.550 87
20	0.120 12	1.448 32	9.346 50	9.989 02	184 6.9	0.550 85
30	− 0.033 07	1.426 07	9.346 42	9.989 02	186 36.9	0.550 84
40	+ 0.053 99	1.403 81	9.346 35	9.989 03	189 7.0	0.550 82
50	0.141 05	1.381 54	9.346 28	9.989 03	191 37.0	0.550 80
13 0	+ 0.228 10	+ 1.359 26	+ 9.346 20	+ 9.989 03	194 7.1	+ 0.550 78
10	0.315 16	1.336 97	9.346 13	9.989 04	196 37.1	0.550 77
20	0.402 21	1.314 67	9.346 06	9.989 04	199 7.1	0.550 75
30	0.489 26	1.292 37	9.345 98	9.989 05	201 37.2	0.550 73
40	0.576 31	1.270 06	9.345 91	9.989 05	204 7.2	0.550 71
50	0.663 36	1.247 74	9.345 84	9.989 05	206 37.2	0.550 68
14 0	+ 0.750 41	+ 1.225 42	+ 9.345 76	+ 9.989 06	209 7.3	+ 0.550 66
10	0.837 45	1.203 09	9.345 69	9.989 06	211 37.3	0.550 64
20	0.924 50	1.180 75	9.345 61	9.989 06	214 7.3	0.550 62
30	1.011 54	1.158 40	9.345 54	9.989 07	216 37.4	0.550 59
40	+ 1.098 58	+ 1.136 04	+ 9.345 47	+ 9.989 07	219 7.4	+ 0.550 57

Greenwich Mean Time.	Log *x′* for 1 Minute.	Log *y′* for 1 Minute.	Log *μ′* for 1 Minute.	Log Tangent of Angle of Cone.
				Penumbra.
h m				
11 0	+ 7.9398	− 7.3460	+ 1.1762	+ 7.664 78
12 0	7.9398	7.3470	1.1762	7.664 79
13 0	7.9398	7.3480	1.1762	7.664 79
14 0	7.9398	7.3489	1.1762	7.664 79
15 0	+ 7.9397	− 7.3498	+ 1.1762	+ 7.664 80

BESSELIAN ELEMENTS OF THE PARTIAL ECLIPSE OF THE SUN, 1906, AUGUST 19.

Co-ordinates of Center of Shadow on Fundamental Plane.		Direction of Axis of Shadow.			Radius of Penumbra on Fundamental Plane.
x	y	Log sin d	Log cos d	μ	l
				° '	
		+ 9.346 72	+ 9.989 01	176 36.8	+ 0.550 90
− 0.381 30	+ 1.515 04				
		+ 9.346 65	+ 9.989 01	179 6.8	+ 0.550 88
− 0.294 24	+ 1.492 81	9.346 57	9.989 01	181 36.9	0.550 87
0.207 18	1.470 57	9.346 50	9.989 02	184 6.9	0.550 85
0.120 12	1.448 32	9.346 42	9.989 02	186 36.9	0.550 84
− 0.033 07	1.426 07	9.346 35	9.989 03	189 7.0	0.550 82
+ 0.053 99	1.403 81	9.346 28	9.989 03	191 37.0	0.550 80
0.141 05	1.381 54				
+ 0.228 10	+ 1.359 26	+ 9.346 20	+ 9.989 03	194 7.1	+ 0.550 78
0.315 16	1.336 97	9.346 13	9.989 04	196 37.1	0.550 77
0.402 21	1.314 67	9.346 06	9.989 04	199 7.1	0.550 75
0.489 26	1.292 37	9.345 98	9.989 05	201 37.2	0.550 73
0.576 31	1.270 06	9.345 91	9.989 05	204 7.2	0.550 71
0.663 36	1.247 74	9.345 84	9.989 05	206 37.2	0.550 68
+ 0.750 41	+ 1.225 42	+ 9.345 76	+ 9.989 06	209 7.3	+ 0.550 66
0.837 45	1.203 09	9.345 69	9.989 06	211 37.3	0.550 64
0.924 50	1.180 75	9.345 61	9.989 06	214 7.3	0.550 62
1.011 54	1.158 40	9.345 54	9.989 07	216 37.4	0.550 59
+ 1.098 58	+ 1.136 04	+ 9.345 47	+ 9.989 07	219 7.4	+ 0.550 57

ch	Log x' for 1 Minute.	Log y' for 1 Minute.	Log μ' for 1 Minute.	Log Tangent of Angle of Cone. Penumbra.
.				
m				
0	+ 7.9398	− 7.3460	+ 1.1762	+ 7.664 78
0	7.9398	7.3470	1.1762	7.664 [illegible]
0	7.9398	7.3480	1.1762	7.664 [illegible]
0	7.9398	7.3489	1.1762	[illegible]
0	+ 7.9397	− 7.3498	+ 1.1762	+ [illegible]

---

tion.

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026
019
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.023
0.020

0.011
0.026
- 0.032
- 0.020
. . .
+ 0.019
− 0.022
− 0.019
− 0.067
. . .

− 0.011
. . .
− 0.026
− 0.015
. . .

. . .
− 0.021
− 0.004
+ 0.001
. . .

− 0.032
. . .
− 0.085
− 0.013
− 0.021

44
3 10.80
52 55.10
31 29.23
28 25.25
24 28.62

+ 21 5 8.22
19 50 38.40
20 15 33.11
19 43 54.18
+ 19 41 33.11

WASHINGTON MEAN TIME.

PHASES OF THE MOON.

New Moon.	d	h	m	First Quarter.	d	h	m	Full Moon.	d	h	m	Last Quarter.	d	h	m
January	24	0	1.0	January	1	21	44.0	January	9	23	28.5	January	17	3	40.5
February	22	14	48.9	February	0	19	22.6	February	8	14	37.4	February	15	11	14.2
March	24	6	43.6	March	2	16	20.0	March	10	3	9.1	March	16	18	49.1
April	22	22	58.2	April	1	10	53.7	April	8	13	4.1	April	15	3	28.2
May	22	14	52.3	May	1	1	58.6	May	7	21	1.4	May	14	13	54.4
June	21	5	57.3	May	30	13	15.4	June	6	4	3.4	June	13	2	26.1
July	20	19	50.8	June	28	21	10.6	July	5	11	19.2	July	12	17	4.5
August	19	8	19.2	July	28	2	48.0	August	3	19	51.4	August	11	9	39.2
September	17	19	25.2	August	26	7	34.2	September	2	6	28.1	September	10	3	45.3
October	17	5	34.4	September	24	13	3.2	October	1	19	40.1	October	9	22	31.0
November	15	15	28.2	October	23	20	41.5	October	31	11	37.5	November	8	16	36.6
December	15	1	46.0	November	22	7	31.1	November	30	5	59.0	December	8	8	36.8
				December	21	21	55.4	December	30	1	35.5				

APOGEE, PERIGEE, AND GREATEST LIBRATION.

Apogee.	d	h	Perigee.	d	h	Greatest Libration.	d	h			d	h	
January	3	22.9	January	19	13.1	January	11	4.4	E.	January	25	16.1	W.
January	31	20.0	February	13	5.1	February	7	0.3	E.	February	21	12.0	W.
February	28	16.6	March	12	11.5	March	6	17.4	E.	March	19	17.1	W.
March	28	9.9	April	9	16.3	April	3	19.8	E.	April	16	3.4	W.
April	24	19.8	May	8	2.0	May	2	1.3	E.	May	14	5.2	W.
May	21	22.0	June	5	12.1	May	30	4.8	E.	June	11	10.4	W.
June	18	5.1	July	3	18.2	June	26	23.3	E.	July	9	13.8	W.
July	15	19.0	July	31	13.7	July	23	19.1	E.	August	6	11.0	W.
August	12	12.7	August	26	16.4	August	19	3.7	E.	September	2	19.8	W.
September	9	7.8	September	21	7.2	September	15	9.3	E.	September	29	6.6	W.
October	7	2.7	October	19	0.7	October	13	6.3	E.	October	25	20.6	W.
November	3	18.9	November	16	8.7	November	10	11.3	E.	November	22	15.0	W.
December	1	1.3	December	14	21.4	December	8	19.2	E.	December	20	20.6	W.
December	28	1.5											

FORMULÆ FOR THE LIBRATION OF THE MOON.

Let I = the inclination of the Moon's equator to the ecliptic ($=1^\circ\ 28'.8$),

Ω = the mean longitude of the Moon's ascending node, or the mean longitude of the descending node of the Moon's equator,

C = the angle at the center of the Moon's disk made by a lunar meridian with the circle of declination, counted from north to east on the apparent disk,

$\lambda, \beta, \alpha, \delta$ = the apparent longitude, latitude, right ascension, and declination of the Moon, corrected for parallax,

λ' = the selenocentric longitude of the Earth, counted on the Moon's equator from its descending node, Ω,

$i, \Delta, \Omega', ☾$ = the quantities defined on page 284, where their values for the current year are given.

The Moon's libration in longitude and latitude may then be found, for any time, by means of the following formulæ, in connection with the tables given on pages 284 and 285:—

$$\left.\begin{aligned} \mu &= -\,0'.574 \sin 2\,(\Omega - \lambda) \\ A &= \sin I \cos\,(\Omega - \lambda) \\ \tan B &= \tan I \sin\,(\Omega - \lambda) \\ \lambda' &= \lambda + \mu + Ab \end{aligned}\right\} \textit{See table, page 285.}$$

$$\text{The libration in latitude} = b = B - \beta$$

$$\text{The libration in longitude} = l = \lambda' - ☾$$

$$\sin C = \sin i\,\frac{\cos\,(\lambda' + \Delta - \Omega)}{\cos \delta} = -\sin i\,\frac{\cos\,(\alpha - \Omega')}{\cos b}$$

MEAN PLACES FOR 1906.0. (January 0^d.553, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Proper Motion.	Declination.	Annual Proper Motion.
		h m s	s	° ′ ″	″
4 Ceti	6.3	0 2 55.181	+ 0.0018	− 3 4 18.92	+ 0.009
5 Ceti	6.3	0 3 23.300	+ 0.0003	2 58 14.09	+ 0.014
B. A. C. 81	6.3	0 19 41.460	− 0.0024	2 44 20.61	− 0.051
10 Ceti	6.4	0 21 48.174	+ 0.0056	0 34 11.95	+ 0.011
14 Ceti	5.4	0 30 43.265	+ 0.0098	− 1 1 19.04	− 0.059
26 Ceti	6.0	0 58 58.728	+ 0.0081	+ 0 51 47.43	− 0.037
33 Ceti	6.1	1 5 43.260	− 0.0010	1 56 44.08	− 0.006
Lalande 2632	6.5	1 22 1.983	....	3 2 52.51	...
Piazzi i, 249	6.5	1 59 53.484	....	7 17 5.70	...
64 Ceti	5.8	2 6 23.245	− 0.0092	8 7 48.18	− 0.107
25 Arietis	6.5	2 22 23.311	− 0.0195	+ 9 46 53.08	− 0.200
B. F. 310	6.3	2 24 34.088	....	9 8 46.52	...
85 Ceti	6.3	2 37 25.140	− 0.0026	10 20 28.78	− 0.012
μ Ceti	4.3	2 39 51.525	+ 0.0188	9 43 3.54	− 0.025
W. B. ii, 1033	5.8	3 1 13.995	+ 0.0018	12 49 31.45	− 0.020
B. D. + 12°, 473	6.2	3 18 59.674	....	+ 12 17 47.43	...
Mayer 121	6.4	3 32 31.139	....	15 7 20.47	...
B. D. + 14°, 657	5.9	4 2 22.689	....	14 54 41.44	...
Piazzi iii, 249	6.1	4 2 36.413	+ 0.0032	17 5 20.24	− 0.022
B. D. + 16°, 569	6.2	4 7 7.668	....	17 2 9.66	...
48 Tauri	6.3	4 10 26.013	+ 0.0085	+ 15 9 57.28	− 0.024
δ^1 Tauri	3.9	4 17 30.734	+ 0.0076	17 19 20.97	− 0.030
63 Tauri	5.7	4 18 1.349	+ 0.0074	16 33 29.78	− 0.027
δ^2 Tauri	4.9	4 18 40.552	+ 0.0084	17 13 36.02	− 0.039
δ^3 Tauri	4.3	4 20 2.952	+ 0.0078	17 42 47.82	− 0.031
70 Tauri	6.4	4 20 15.253	+ 0.0073	+ 15 43 35.67	− 0.026
71 Tauri	4.6	4 20 59.284	+ 0.0075	15 24 19.27	− 0.019
75 Tauri	5.2	4 23 3.871	+ 0.0002	16 8 59.50	+ 0.020
θ^1 Tauri	4.2	4 23 12.172	+ 0.0071	15 45 14.35	− 0.023
θ^2 Tauri	3.6	4 23 17.653	+ 0.0078	15 39 46.36	− 0.020
80 Tauri	5.8	4 24 46.882	+ 0.0059	+ 15 25 59.29	− 0.011
Bradley 619	4.8	4 25 10.749	+ 0.0084	15 59 23.72	− 0.026
81 Tauri	5.5	4 25 17.079	+ 0.0069	15 29 16.12	− 0.032
85 Tauri	6.0	4 26 29.527	+ 0.0070	15 39 1.39	− 0.020
B. D. + 17°, 750	6.2	4 28 6.430	....	17 49 7.17	...
B. A. C. 1406	6.5	4 28 15.282	+ 0.0010	+ 16 7 33.74	+ 0.019
89 Tauri	5.8	4 32 46.527	+ 0.0072	15 50 43.22	− 0.022
σ^2 Tauri	4.9	4 33 53.817	+ 0.0062	15 43 55.77	− 0.019
Mayer 177	6.1	4 40 47.434	+ 0.0053	18 33 54.48	− 0.067
B. D. + 19°, 811	6.2	4 49 26.861	....	19 20 0.44	...
Bradley 686	5.7	4 51 56.501	− 0.0008	+ 17 0 24.00	− 0.011
Mayer 198	6.3	4 59 59.529	....	19 40 39.80	...
m Tauri	5.0	5 1 53.591	+ 0.0380	18 31 9.83	− 0.026
107 Tauri	6.5	5 3 17.501	+ 0.0002	19 44 17.80	− 0.015
B. A. C. 1639	6.2	5 13 41.003	....	20 2 11.44	...
B. A. C. 1651	6.5	5 15 23.445	....	+ 19 43 10.80	...
115 Tauri	5.3	5 21 41.074	+ 0.0016	17 52 55.10	− 0.021
119 Tauri	4.9	5 26 42.089	+ 0.0007	18 31 29.23	− 0.004
120 Tauri	5.6	5 28 1.085	+ 0.0011	18 28 25.25	+ 0.001
Piazzi v, 125	6.1	5 28 3.546	....	20 24 28.62	...
ζ Tauri	3.0	5 32 1.588	+ 0.0006	+ 21 5 8.22	− 0.032
B. D. + 19°, 1110	6.0	5 46 49.245	....	19 50 38.40	...
χ^1 Orionis	4.5	5 48 48.975	− 0.0126	20 15 33.11	− 0.085
χ^2 Orionis	5.8	5 49 22.776	+ 0.0003	19 43 54.18	− 0.013
χ^3 Orionis	5.1	5 57 53.518	+ 0.0014	+ 19 41 33.11	− 0.021

MEAN PLACES FOR 1906.0. (January 0^d.553, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Proper Motion.	Declination.	Annual Proper Motion
		h m s	s	° ′ ″	″
χ^4 Orionis	4.7	5 58 20.251	+ 0.0011	+ 20 8 28.01	− 0.003
68 Orionis	5.7	6 6 27.312	+ 0.0012	19 48 42.94	− 0.013
B. D. + 18°, 1129	6.2	6 8 1.917	....	18 42 19.24	...
71 Orionis	5.1	6 9 19.042	− 0.0062	19 11 19.63	− 0.194
15 Geminorum	6.5	6 22 10.475	− 0.0015	20 50 50.92	− 0.054
16 Geminorum	6.2	6 22 21.269	− 0.0019	+ 20 33 11.26	− 0.006
d Geminorum	5.2	6 45 55.112	+ 0.0003	21 52 20.88	− 0.045
Lalande 13849	6.5	7 4 32.163	....	21 24 40.41	...
56 Geminorum	5.2	7 16 24.099	− 0.0044	20 37 17.60	− 0.025
B. A. C. 2455	6.4	7 21 17.018	....	21 43 26.26	...
61 Geminorum	5.8	7 21 23.949	− 0.0002	+ 20 26 44.71	− 0.023
63 Geminorum	5.3	7 22 9.672	− 0.0035	21 38 16.97	− 0.110
79 Geminorum	6.3	7 39 38.297	− 0.0013	20 32 31.73	− 0.012
g Geminorum	5.0	7 40 40.993	− 0.0048	18 44 23.34	− 0.063
B. A. C. 2605	6.2	7 46 28.828	....	19 33 58.25	...
85 Geminorum	5.2	7 50 10.835	− 0.0011	+ 20 7 57.15	− 0.043
B. D. + 20°, 1976	6.3	7 55 19.398	....	20 4 27.51	...
3 Cancri	5.7	7 55 24.209	− 0.0001	17 33 59.88	− 0.010
B. F. 1128	6.1	7 59 19.395	....	19 6 29.07	...
ζ Cancri	4.6	8 6 49.348	+ 0.0051	17 55 54.30	− 0.128
d^1 Cancri	5.7	8 17 58.982	− 0.0038	+ 18 38 3.78	− 0.031
d^2 Cancri	6.2	8 20 30.736	− 0.0132	17 21 23.17	− 0.153
θ Cancri	5.5	8 26 14.263	− 0.0039	18 24 44.54	− 0.068
B. A. C. 2919	6.5	8 34 58.365	− 0.0048	20 0 9.78	− 0.010
ε Cancri	6.3	8 35 3.692	− 0.0007	19 52 39.52	− 0.027
δ Cancri	4.1	8 39 20.699	− 0.0008	+ 18 30 0.59	− 0.240
B. A. C. 2991	6.1	8 45 24.183	....	19 11 0.20	...
54 Cancri	6.3	8 45 47.444	− 0.0075	15 41 58.82	+ 0.076
B. A. C. 3029	6.5	8 50 5.313	....	17 35 21.84	...
υ^1 Cancri	5.1	8 52 0.472	+ 0.0041	15 41 0.98	+ 0.022
o^2 Cancri	5.7	8 52 20.312	+ 0.0043	+ 15 56 33.45	+ 0.023
π^1 Cancri	6.4	9 7 9.043	− 0.0359	15 22 30.71	+ 0.244
π^2 Cancri	5.6	9 10 2.609	− 0.0022	15 19 54.39	− 0.008
B. D. + 15°, 2027	6.4	9 16 4.140	....	15 46 13.52	...
B. A. C. 3209	6.3	9 20 20.279	....	16 59 29.41	...
7 Leonis	6.2	9 30 44.786	− 0.0021	+ 14 47 57.78	− 0.002
8 Leonis	5.9	9 31 51.527	− 0.0006	16 51 33.48	− 0.015
11 Leonis	6.5	9 32 53.597	− 0.0047	14 46 20.56	− 0.080
ψ Leonis	5.6	9 38 36.848	− 0.0002	14 27 6.90	− 0.009
ν Leonis	5.0	9 53 10.006	− 0.0028	12 53 36.00	− 0.027
34 Leonis	6.4	10 6 35.038	+ 0.0037	+ 13 49 10.03	− 0.035
37 Leonis	5.5	10 11 38.092	− 0.0013	14 11 50.39	− 0.014
45 Leonis	5.8	10 22 41.170	+ 0.0011	10 14 30.59	− 0.003
χ Leonis	4.6	11 0 10.146	− 0.0234	7 50 39.93	− 0.041
Piazzi xi, 12	5.8	11 9 8.814	+ 0.0032	8 34 30.59	− 0.125
σ Leonis	4.2	11 16 17.413	− 0.0062	+ 6 32 40.79	− 0.013
ν Virginis	4.2	11 41 1.705	− 0.0014	7 3 22.34	− 0.186
b Virginis	5.2	11 55 8.071	− 0.0008	4 10 43.75	− 0.012
10 Virginis	6.2	12 4 52.327	+ 0.0034	2 25 32.75	− 0.181
c Virginis	5.1	12 15 34.528	− 0.0198	3 50 9.71	− 0.072
Piazzi xii, 142	5.9	12 33 34.762	− 0.0042	+ 2 22 19.47	− 0.021
65 Virginis	6.0	13 18 26.562	− 0.0016	− 4 25 58.13	− 0.016
66 Virginis	5.7	13 19 39.558	+ 0.0105	4 40 22.40	− 0.030
80 Virginis	5.6	13 30 37.800	+ 0.0010	4 55 2.94	+ 0.075
Piazzi xiii, 174	6.4	13 39 0.671	....	− 5 1 31.96	...

MEAN PLACES FOR 1906.0. (January 0^d.553, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Proper Motion.	Declination.	Annual Proper Motion.
		h m s	s	° ′ ″	″
n Virginis	6.5	13 43 22.832	– 0.0032	— 6 22 6.71	– 0.033
Bradley 1820	6.1	13 50 2.268	– 0.0121	7 35 47.33	– 0.048
Lalande 26147	6.5	14 13 1.035	. . . .	7 6 5.90	. . .
ξ¹ Libræ	5.7	14 49 16.539	– 0.0048	11 39 54.25	– 0.020
ξ² Libræ	5.7	14 51 39.930	– 0.0006	11 1 50.22	– 0.001
17 Libræ	6.4	14 53 7.665	– 0.0019	— 10 46 38.96	– 0.021
18 Libræ	5.9	14 53 48.436	– 0.0079	10 45 59.67	– 0.077
Mayer 616	5.9	15 18 42.620	– 0.0043	12 2 3.33	– 0.038
γ Libræ	4.1	15 30 15.985	+ 0.0047	14 28 34.58	+ 0.006
Bradley 1987	6.5	15 38 8.508	– 0.0009	14 44 31.42	– 0.115
η Libræ	5.5	15 38 46.995	– 0.0028	— 15 22 25.39	– 0.079
W. B. xv, 839	6.2	15 46 23.324	. . . .	13 51 0.20	. . .
θ Libræ	4.4	15 48 28.281	+ 0.0066	16 27 13.79	+ 0.119
W. B. xv, 910	6.4	15 50 58.028	. . . .	14 7 23.96	. . .
B. D. – 14°, 4314	6.2	15 51 15.927	. . . .	14 33 16.19	. . .
48 Libræ	4.6	15 52 55.434	– 0.0004	— 14 0 30.44	– 0.026
49 Libræ	5.4	15 55 3.032	– 0.0435	16 15 24.13	– 0.390
W. B. xvi, 140	6.1	16 10 33.033	. . . .	14 36 49.95	. . .
χ Ophiuchi	4.9	16 21 34.465	– 0.0006	18 14 35.85	– 0.022
φ Ophiuchi	4.4	16 25 45.419	– 0.0039	16 24 28.86	– 0.029
24 Scorpii	5.0	16 36 8.091	– 0.0017	— 17 33 38.15	– 0.004
Piazzi xvi, 232	6.5	16 50 36.244	. . . .	16 39 24.87	. . .
B. A. C. 5700	6.1	16 51 32.516	. . . .	19 23 29.03	. . .
B. A. C. 5712	6.5	16 54 15.755	. . . .	18 6 9.27	. . .
29 Ophiuchi	6.4	16 56 21.253	– 0.0024	18 44 51.25	– 0.020
Piazzi xvi, 297	6.2	17 2 47.263	. . . .	— 17 29 5.56	. . .
Piazzi xvii, 43	6.0	17 14 25.014	. . . .	17 39 29.94	. . .
B. D. – 18°, 4516	6.3	17 19 6.816	. . . .	18 21 31.09	. . .
Mayer 722	6.3	17 50 23.263	+ 0.0019	18 47 8.90	– 0.004
B. A. C. 6081	6.4	17 54 24.624	. . . .	20 19 57.57	. . .
B. A. C. 6125	6.2	18 1 33.115	. . . .	— 21 27 13.60	. . .
Lalande 33327	6.3	18 5 40.466	. . . .	19 51 38.31	. . .
14 Sagittarii	5.6	18 8 37.057	. . . .	21 44 18.83	. . .
15 Sagittarii	5.3	18 9 36.445	. . . .	20 45 23.28	. . .
16 Sagittarii	5.9	18 9 37.404	. . . .	20 24 58.77	. . .
Lalande 33540	6.1	18 9 59.417	. . . .	— 18 41 26.25	. . .
B. A. C. 6195	6.4	18 11 57.810	. . . .	18 29 50.44	. . .
B. A. C. 6201	6.4	18 13 12.024	. . . .	18 39 21.71	. . .
Y Sagittarii	Var.	18 15 51.195	. . . .	18 54 7.81	. . .
21 Sagittarii	5.0	18 19 45.126	. . . .	20 35 32.37	. . .
Mayer 748	5.7	18 24 40.413	. . . .	— 18 47 19.03	. . .
Mayer 750	5.0	18 25 55.824	– 0.0012	18 28 2.78	– 0.026
Bradley 2332	5.7	18 32 16.698	. . . .	21 28 33.68	. . .
B. A. C. 6347	5.9	18 33 17.144	0.0056	21 7 47.56	– 0.138
B. D. – 21°, 5131	6.3	18 39 42.013	. . . .	21 5 50.62	. . .
29 Sagittarii	5.3	18 44 5.484	+ 0.0005	— 20 25 55.04	+ 0.030
33 Sagittarii	5.8	18 48 23.025	– 0.0008	21 28 30.81	– 0.015
ξ¹ Sagittarii	5.1	18 51 45.309	– 0.0010	20 46 46.69	– 0.011
ξ² Sagittarii	3.7	18 52 7.339	+ 0.0023	21 13 50.24	– 0.023
Lalande 35497	6.1	18 57 32.318	. . . .	19 22 55.06	. . .
B. D. – 19°, 5275	6.4	18 57 35.855	. . . .	— 19 14 20.19	. . .
o Sagittarii	3.9	18 59 3.025	+ 0.0050	21 52 46.56	– 0.064
B. D. – 18°, 5206	6.4	19 1 38.356	. . . .	18 52 59.61	. . .
Bradley 2402	5.4	19 2 45.368	+ 0.0001	19 26 16.37	– 0.003
π Sagittarii	3.0	19 4 10.452	– 0.0005	— 21 10 24.46	– 0.036

MEAN PLACES FOR 1906.0. (January 0^d.553, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Proper Motion.	Declination.	Annual Proper Motion.
		h m s	s	° ′ ″	″
B. A. C. 6550	6.3	19 4 15.574	....	— 19 57 7.63	...
B. A. C. 6561	6.4	19 6 51.036	....	21 48 53.03	...
B. A. C. 6616	6.4	19 16 6.675	....	19 24 37.81	...
ρ^2 Sagittarii	6.0	19 16 21.943	....	18 28 58.24	...
50 Sagittarii	5.5	19 20 42.817	+ 0.0019	21 57 47.23	+ 0.001
B. A. C. 6671	6.1	19 25 19.362	....	— 21 30 28.95	...
Mayer 814	6.1	19 30 57.324	+ 0.0003	19 3 38.81	— 0.009
Mayer 815	5.8	19 31 36.177	....	18 26 24.72	...
f Sagittarii	5.1	19 40 52.775	— 0.0099	19 59 14.82	— 0.088
57 Sagittarii	6.0	19 46 44.313	+ 0.0001	19 17 2.63	- 0.057
σ Capricorni	5.5	20 13 58.274	....	— 19 24 44.03	...
ρ Capricorni	5.0	20 23 30.015	— 0.0013	18 7 29.26	— 0.020
o Capricorni	5.6	20 24 30.665	+ 0.0011	18 53 40.67	— 0.081
Piazzi xx, 194	6.2	20 30 13.173	....	16 50 56.74	...
υ Capricorni	5.3	20 34 42.001	— 0.0018	18 28 11.41	— 0.007
B. A. C. 7145	5.9	20 35 15.737	....	— 16 27 31.85	...
B. D. – 18°, 5783	6.4	20 44 0.708	....	18 22 58.44	...
19 Capricorni	5.7	20 49 29.240	— 0.0041	18 16 46.69	— 0.013
Mayer 889	5.7	20 52 25.006	....	16 23 36.16	...
20 Capricorni	6.2	20 54 15.762	+ 0.0012	19 24 0.16	— 0.020
21 Capricorni	6.5	20 55 34.446	— 0.0025	— 17 53 51.55	— 0.002
θ Capricorni	4.1	21 0 39.868	+ 0.0050	17 36 24.40	— 0.066
B. D. – 17°, 6216	6.1	21 9 51.153	....	17 44 2.46	...
29 Capricorni	5.5	21 10 32.762	+ 0.0016	15 33 44.67	+ 0.004
30 Capricorni	5.4	21 12 41.116	+ 0.0015	18 22 45.42	— 0.002
31 Capricorni	6.3	21 13 0.197	+ 0.0031	— 17 51 24.74	+ 0.006
ι Capricorni	4.3	21 17 0.861	+ 0.0022	17 14 6.60	+ 0.004
γ Capricorni	3.7	21 34 53.072	+ 0.0129	17 5 13.64	— 0.018
42 Capricorni	5.1	21 36 26.292	— 0.0084	14 28 1.14	— 0.302
44 Capricorni	6.0	21 37 56.770	— 0.0005	14 49 46.97	+ 0.024
45 Capricorni	5.8	21 38 53.137	— 0.0013	— 15 10 49.67	— 0.002
δ Capricorni	2.9	21 41 51.238	+ 0.0176	16 33 14.80	- 0.298
B. A. C. 7599	6.1	21 44 36.306	....	13 9 40.28	...
ι Aquarii	4.4	22 1 21.690	+ 0.0022	14 19 33.47	— 0.062
c^2 Aquarii	5.4	22 5 36.026	+ 0.0019	12 1 38.57	+ 0.020
39 Aquarii	6.2	22 7 21.699	+ 0.0016	— 14 39 25.02	— 0.044
42 Aquarii	5.5	22 11 46.153	+ 0.0010	13 18 1.46	+ 0.009
45 Aquarii	6.1	22 13 58.125	+ 0.0051	13 46 32.73	— 0.002
50 Aquarii	5.9	22 19 25.040	....	14 0 21.65	...
Bradley 2961	6.2	22 25 0.042	+ 0.0129	13 23 48.10	— 0.019
58 Aquarii	6.4	22 26 42.385	+ 0.0050	— 11 23 14.49	— 0.032
70 Aquarii	6.1	22 43 33.541	+ 0.0035	11 3 7.17	+ 0.010
74 Aquarii	5.8	22 48 31.821	....	12 6 59.52	...
81 Aquarii	6.4	22 56 30.563	— 0.0015	7 33 57.55	— 0.001
h^1 Aquarii	5.4	23 0 15.712	+ 0.0081	8 12 4 21	+ 0.016
ψ^1 Aquarii	4.5	23 10 58.071	+ 0.0250	— 9 35 59.46	— 0.005
χ Aquarii	5.3	23 11 58.632	....	8 14 21.31	...
ψ^2 Aquarii	4.6	23 13 1.138	....	9 41 44.44	...
B. A. C. 8129	6.3	23 15 50.194	....	6 25 16.88	...
B. A. C. 8214	6.5	23 30 41.154	....	7 59 5.16	...
Mayer 1012	6.3	23 43 42.708	+ 0.0009	— 6 54 8.82	— 0.023
24 Piscium	6.1	23 48 5.867	+ 0.0051	3 40 38.96	— 0.048
27 Piscium	5.1	23 53 51.648	— 0.0034	4 4 38.77	— 0.066
29 Piscium	5.1	23 57 0.397	+ 0.0009	— 3 33 2.59	— 0.012

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JANUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x′	y′	N.	S.
		Δα	Δδ								
		s	″	° ′	d h m	h m				°	°
B. A. C. 81	6.3	-0.74	-7.0	- 2 44.5	1 6 47.4	+ 1 10.6	+1.1859	0.5189	+0.1844	+87	+38
10 Ceti	6.4	0.71	6.3	0 34.3	7 54.3	+ 2 15.6	-0.9851	0.5187	0.1845	-21	-90
14 Ceti	5.4	0.67	6.9	- 1 1.4	12 37.4	+ 6 50.6	+0.3807	0.5178	0.1846	+60	-14
26 Ceti	6.0	0.50	7.1	+ 0 51.7	2 3 39.9	- 2 32.8	+1.0787	0.5157	0.1831	+90	+29
33 Ceti	6.1	0.45	7.0	1 56.6	7 16.0	+ 0 57.2	+0.5442	0.5154	0.1824	+71	- 6
f Piscium	5.3	-0.41	-6.8	+ 3 7.1	11 7.9	+ 4 42.5	-0.0480	0.5154	+0.1815	+33	-39
Lalande 2632	6.5	0.36	7.1	3 2.8	15 59.4	+ 9 25.7	+0.9100	0.5155	0.1802	+90	+17
ν Piscium	4.6	0.27	6.8	5 0.6	23 44.5	- 7 2.4	+0.1250	0.5158	0.1772	+43	-28
Piazzi i, 249	6.5	0.13	6.6	7 17.0	3 12 10.9	+ 5 2.6	-0.2178	0.5175	0.1717	+23	-47
64 Ceti	5.8	0.09	6.6	8 7.7	15 37.7	+ 8 23.5	-0.5654	0.5181	0.1699	+ 5	-71
ξ^1 Ceti	4.6	-0.08	-6.5	+ 8 24.2	16 29.4	+ 9 13.7	-0.7247	0.5182	+0.1694	- 5	-81
25 Arietis	6.5	0.00	6.4	9 46.8	4 0 4.8	- 7 23.9	-0.9807	0.5200	0.1647	-21	-80
ξ^2 Ceti	4.3	-0.01	7.0	8 2.2	0 29.1	- 7 0.4	+1.0165	0.5201	0.1645	+90	+27
B. F. 310	6.3	+0.01	6.7	9 8.7	1 13.5	- 6 17.3	-0.0885	0.5201	0.1640	+30	-38
85 Ceti	6.3	0.07	6.6	10 20.4	7 57.6	+ 0 15.1	-0.3238	0.5221	0.1592	+18	-51
μ Ceti	4.3	+0.08	-6.9	+ 9 42.9	9 14.0	+ 1 29.2	+0.5692	0.5223	+0.1583	+74	- 1
W. B. ii, 1033	5.8	0.20	6.4	12 49.4	20 18.6	-11 45.7	-1.1666	0.5262	0.1492	-38	-77
B. D.+12°, 473	6.2	0.27	7.0	12 17.7	5 5 23.9	- 2 56.7	+0.7373	0.5296	0.1408	+81	+11
f Tauri	4.3	0.30	7.0	12 36.8	8 47.4	+ 0 20.6	+0.8568	0.5310	0.1374	+90	+19
B. D.+14°, 657	5.9	0.46	7.2	14 54.6	6 3 6.2	- 5 54.2	+0.6544	0.5390	0.1167	+85	+ 9
48 Tauri	6.3	+0.49	-7.4	+15 9.8	7 3.2	- 2 4.5	+0.8252	0.5408	+0.1117	+90	+20
γ Tauri	3.9	0.50	7.3	15 23.9	9 0.6	- 0 10.9	+0.7826	0.5417	0.1092	+90	+18
δ^1 Tauri	3.9	0.52	7.0	17 19.2	10 30.3	+ 1 16.0	-1.1669	0.5423	0.1073	-40	-73
63 Tauri	5.7	0.52	7.1	16 33.4	10 45.1	+ 1 30.4	-0.3006	0.5424	0.1069	+18	-43
δ^2 Tauri	4.9	0.52	7.0	17 13.5	11 4.2	+ 1 48.8	-1.0009	0.5426	0.1065	-25	-73
70 Tauri	6.4	+0.52	-7.4	+15 43.5	11 50.1	+ 2 33.2	+0.7279	0.5429	+0.1055	+80	+15
71 Tauri	4.6	0.52	7.5	15 24.2	12 11.5	+ 2 54.0	+1.1179	0.5431	0.1050	+90	+43
75 Tauri	5.2	0.52	7.3	16 8.9	13 11.8	+ 3 52.4	+0.4053	0.5436	0.1037	+61	- 4
θ^1 Tauri	4.2	0.53	7.4	15 45.1	13 15.9	+ 3 56.4	+0.8467	0.5436	0.1036	+90	+22
θ^2 Tauri	3.6	0.52	7.5	15 39.6	13 18.5	+ 3 58.9	+0.9514	0.5436	0.1035	+90	+29
80 Tauri	5.8	+0.53	-7.5	+15 25.9	14 1.7	+ 4 40.7	+1.2775	0.5440	+0.1025	+90	+64
Bradley 619	4.8	0.53	7.4	15 59.3	14 13.2	+ 4 51.8	+0.6859	0.5440	0.1023	+90	+12
81 Tauri	5.5	0.53	7.5	15 29.1	14 16.2	+ 4 54.7	+1.2423	0.5441	0.1022	+90	+57
85 Tauri	6.0	0.54	7.5	15 38.9	14 51.3	+ 5 28.7	+1.1231	0.5443	0.1014	+90	+44
B. D. +17°, 750	6.2	0.55	7.1	17 49.0	15 38.0	+ 6 14.0	-1.1771	0.5447	0.1003	-42	-72
B. A. C. 1406	6.5	+0.54	-7.4	+16 7.4	15 42.3	+ 6 18.1	+0.6868	0.5447	+0.1002	+89	+13
α Tauri	1.1	0.55	7.4	16 19.1	16 47.9	+ 7 21.6	+0.5818	0.5452	0.0987	+77	+ 7
89 Tauri	5.8	0.55	7.6	15 50.6	17 52.8	+ 8 24.4	+1.2088	0.5458	0.0972	+90	+53
Bradley 686	5.7	0.62	7.7	17 0.3	7 3 1.2	- 6 44.9	+0.7633	0.5499	0.0839	+90	+19
m Tauri	5.0	0.65	7.6	18 31.0	7 42.9	- 2 12.3	-0.5122	0.5520	0.0768	+ 7	-54
115 Tauri	5.3	+0.69	-8.0	+17 52.8	16 57.1	+ 6 43.6	+0.8236	0.5561	+0.0620	+90	+25
119 Tauri	4.9	0.71	8.0	18 31.4	19 16.5	+ 8 58.3	+0.2635	0.5570	0.0582	+51	- 6
120 Tauri	5.6	0.70	8.0	18 28.3	19 52.9	+ 9 33.6	+0.3540	0.5573	0.0571	+58	0
B. D.+19°, 1110	6.0	0.74	8.1	19 50.5	8 4 30.7	- 6 6.0	-0.7025	0.5606	0.0424	- 5	-68
χ^1 Orionis	4.5	0.74	8.1	20 15.4	5 25.3	- 5 13.2	-1.1142	0.5610	0.0409	-37	-70
χ^2 Orionis	5.8	+0.74	-8.2	+19 43.8	5 40.7	- 4 58.4	-0.5323	0.5611	+0.0404	+ 5	-53
χ^3 Orionis	5.1	0.75	8.3	19 41.4	9 32.9	- 1 14.0	-0.3461	0.5625	0.0336	+16	-39
χ^4 Orionis	4.7	0.76	8.2	20 8.3	9 45.0	- 1 2.4	-0.8245	0.5626	0.0332	-13	-70
68 Orionis	5.7	0.76	8.3	19 48.6	13 25.3	+ 2 30.4	-0.3579	0.5638	0.0267	+15	-39
B. D.+18°, 1129	6.2	0.76	8.5	18 42.2	14 8.0	+ 3 11.7	+0.8555	0.5640	0.0254	+90	+31
71 Orionis	5.1	+0.76	-8.5	+19 11.2	14 42.8	+ 3 45.3	+0.3479	0.5642	+0.0243	+58	+ 2
16 Geminorum	6.2	0.78	8.5	20 33.0	20 34.4	+ 9 24.8	-1.0112	0.5659	0.0136	-27	-69
ν Geminorum	4.0	0.78	8.5	20 16.2	21 2.0	+ 9 51.5	-0.7024	0.5661	+0.0128	- 5	-67
ζ Geminorum	Var.	0.79	8.9	20 42.4	9 12 40.6	+ 0 57.5	-1.1931	0.5697	-0.0164	-46	-69
61 Geminorum	5.8	0.78	9.0	20 26.6	22 45.9	+10 41.5	-1.1695	0.5712	0.0355	-43	-70
g Geminorum	5.0	+0.76	-9.1	+18 44.2	10 7 14.5	- 5 7.8	+0.2790	0.5719	-0.0514	+53	- 5

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JANUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° '	d h m	h m				°	°
B. A. C. 2605	6.2	+0.75	-9.1	+19 33.8	**10** 9 47.2	- 2 40.5	-0.7351	0.5720	-0.0561	- 7	-70
3 Cancri	5.7	0.74	9.0	17 33.8	13 42.2	+ 1 6.3	+1.1513	0.5721	0.0633	+90	+51
B. F. 1128	6.1	0.74	9.1	19 6.3	15 25.4	+ 2 45.8	-0.5937	0.5721	0.0665	+ 2	-60
ζ Cancri	4.6	0.73	9.0	17 55.8	18 42.9	+ 5 56.4	+0.4228	0.5720	0.0725	+63	+ 1
d^1 Cancri	5.7	0.71	9.0	18 37.9	23 36.7	+10 39.8	-0.6963	0.5718	0.0813	- 4	-70
d^2 Cancri	6.2	+0.71	-8.9	+17 21.2	**11** 0 43.3	+11 44.1	+0.5613	0.5718	-0.0833	+75	+ 8
θ Cancri	5.5	0.69	9.0	18 24.6	3 14.3	- 9 50.2	-0.7674	0.5716	0.0877	- 9	-72
54 Cancri	6.3	0.66	8.6	15 41.8	11 50.2	- 1 32.5	+1.2694	0.5708	0.1024	+90	+63
B. A. C. 3029	6.5	0.65	8.7	17 35.2	13 43.9	+ 0 17.3	-0.9130	0.5706	0.1055	-18	-72
o^1 Cancri	5.1	0.65	8.5	15 40.9	14 34.6	+ 1 6.2	+0.9983	0.5705	0.1070	+90	+32
o^2 Cancri	5.7	+0.64	-8.5	+15 56.4	14 43.4	+ 1 14.7	+0.7108	0.5705	-0.1072	+85	+14
π^1 Cancri	6.4	0.60	8.2	15 22.4	21 15.7	+ 7 33.2	+0.5686	0.5696	0.1177	+75	+ 5
π^2 Cancri	5.6	0.60	8.2	15 19.8	22 32.5	+ 8 47.3	+0.4619	0.5694	0.1197	+66	- 2
B.D. +15°,2027	6.4	0.58	8.2	15 46.1	**12** 1 12.5	+11 21.5	-0.3219	0.5690	0.1238	+18	-46
7 Leonis	6.2	0.54	7.8	14 47.8	7 43.3	- 6 21.1	-0.1452	0.5678	0.1335	+27	-36
11 Leonis	6.5	+0.54	-7.8	+14 46.2	8 40.6	- 5 25.8	-0.2450	0.5677	-0.1349	+22	-42
ψ Leonis	5.6	0.52	7.7	14 27.0	11 13.3	- 2 58.4	-0.2586	0.5672	0.1385	+21	-43
ν Leonis	5.0	0.48	7.1	12 53.5	17 43.0	+ 3 17.8	+0.4360	0.5660	0.1472	+63	- 6
α Leonis	1.4	0.45	6.8	12 25.5	22 17.1	+ 7 42.5	+0.2344	0.5651	0.1531	+49	-17
45 Leonis	5.8	0.39	6.0	10 14.4	**13** 6 58.1	- 7 54.4	+1.1250	0.5635	0.1632	+90	+37
ρ Leonis	3.8	+0.38	-5.7	+ 9 47.2	9 18.2	- 5 39.1	+1.2074	0.5630	-0.1658	+90	+45
χ Leonis	4.6	0.26	4.4	7 50.6	23 56.3	+ 8 29.1	+0.6818	0.5606	0.1796	+86	+ 4
Piazzi xi, 12	5.8	0.22	4.4	8 34.4	**14** 4 1.4	-11 34.1	-0.8117	0.5600	0.1829	-10	-81
σ Leonis	4.2	0.20	3.6	6 32.6	7 16.7	- 8 25.4	+0.6790	0.5596	0.1852	+86	+ 3
b Virginis	5.2	0.04	1.8	4 10.7	**15** 1 1.8	+ 8 43.9	-0.2771	0.5583	0.1950	+20	-51
10 Virginis	6.2	+0.01	-1.0	+ 2 25.5	5 29.1	-10 57.9	+0.6446	0.5582	-0.1966	+81	0
γ Virginis(*mean*)	2.9	-0.13	+1.0	- 0 56.0	20 7.6	+ 3 11.0	+1.1710	0.5589	0.1993	+89	+36
65 Virginis	6.0	0.32	3.4	4 25.9	**16** 15 0.1	- 2 34.9	+0.9789	0.5614	0.1969	+86	+21
66 Virginis	5.7	0.33	3.5	4 40.3	15 33.1	- 2 3.1	+1.1146	0.5616	0.1968	+85	+31
80 Virginis	5.6	0.39	3.6	4 55.0	20 29.7	+ 2 43.4	+0.3935	0.5626	0.1950	+60	-14
Piazzi xiii, 174	6.4	-0.43	+4.0	- 5 1.5	**17** 0 15.6	+ 6 21.4	-0.2279	0.5636	-0.1934	+22	-49
n Virginis	6.5	0.44	4.6	6 22.0	2 13.0	+ 8 14.8	+0.7570	0.5641	0.1924	+78	+ 6
Lalande 26147	6.5	0.60	5.4	7 6.0	15 23.3	- 3 2.4	-0.9831	0.5680	0.1841	-23	-90
ξ^1 Libræ	5.7	0.79	7.4	11 30.8	**18** 7 13.9	-11 45.4	+0.6746	0.5739	0.1696	+77	+ 2
ξ^2 Libræ	5.7	0.80	7.3	11 1.7	8 15.8	-10 45.7	+0.0103	0.5743	0.1685	+32	-35
17 Libræ	6.4	-0.81	+7.2	-10 46.5	8 53.7	-10 9.1	-0.3517	0.5746	-0.1678	+13	-57
18 Libræ	5.9	0.81	7.2	10 45.9	9 11.3	- 9 52.2	-0.4118	0.5747	0.1674	+ 9	-61
Mayer 616	5.9	0.95	7.7	12 1.9	19 51.2	+ 0 24.6	-0.8497	0.5791	0.1546	-18	-90
γ Libræ	4.1	1.01	8.6	14 28.4	**19** 0 44.9	+ 5 7.5	+0.8756	0.5810	0.1480	+75	+15
Bradley 1987	6.5	1.05	8.6	14 44.4	4 3.9	+ 8 19.2	+0.6608	0.5824	0.1432	+72	+ 1
η Libræ	5.5	-1.05	+8.8	-15 22.3	4 20.1	+ 8 34.7	+1.2599	0.5825	-0.1428	+75	+51
W. B. xv, 839	6.2	1.09	8.3	13 50.9	7 31.4	+11 38.9	-0.7263	0.5839	0.1381	-12	-83
W. B. xv, 910	6.4	1.12	8.4	14 7.3	9 26.2	-10 30.5	-0.7117	0.5847	0.1351	-12	-86
B.D.-14°, 4314	6.2	1.12	8.5	14 33.1	9 33.7	-10 23.2	-0.2933	0.5847	0.1350	+12	-53
48 Libræ	4.6	1.13	8.3	14 0.4	10 15.2	- 9 43.3	-0.9375	0.5850	0.1339	-27	-90
49 Libræ	5.4	-1.14	+9.0	-16 15.3	11 8.3	- 8 52.2	+1.2142	0.5853	-0.1325	+74	+45
W. B. xvi, 140	6.1	1.22	8.3	14 36.7	17 33.9	- 2 41.0	-1.2625	0.5879	0.1220	-59	-90
φ Ophiuchi	4.4	1.30	8.7	16 24.3	23 49.4	+ 3 20.3	-0.1804	0.5902	0.1111	+15	-46
24 Scorpii	5.0	1.35	8.8	17 33.5	**20** 4 4.0	+ 7 25.3	+0.5283	0.5917	0.1034	+58	- 6
Piazzi xvi, 232	6.5	1.41	8.3	16 39.3	9 57.2	-10 55.1	-0.9606	0.5935	0.0922	-32	-90
B. A. C. 5712	6.5	-1.44	+8.6	-18 6.0	11 26.2	- 9 29.4	+0.3656	0.5940	-0.0894	+45	-15
29 Ophiuchi	6.4	1.45	8.7	18 44.7	12 17.0	- 8 40.6	+0.9424	0.5942	0.0877	+71	+21
Piazzi xvi, 297	6.2	1.47	8.2	17 29.0	14 53.1	- 6 10.6	-0.5553	0.5949	0.0826	- 8	-74
Piazzi xvii, 43	6.0	1.52	8.0	17 39.4	19 34.4	- 1 40.1	-0.7452	0.5961	0.0732	-20	-90
B. D.-18°,4516	6.3	1.54	8.1	18 21.4	21 27.8	+ 0 8.9	-0.1716	0.5965	0.0693	+12	-46
Mayer 722	6.3	-1.67	+7.1	-18 47.0	**21** 9 59.7	-11 48.5	-0.4432	0.5984	-0.0428	5	-65

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JANUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		s	"	° ′	d h m	h m				°	°
B. A. C. 6081	6.4	-1.70	+7.3	-20 19.8	**21** 11 36.3	-10 15.6	+1.0589	0.5985	-0.0394	+70	+31
Lalande 33327	6.3	1.73	6.8	19 51.5	16 6.3	- 5 56.1	+0.4256	0.5987	0.0296	+44	-11
16 Sagittarii	5.9	1.74	6.6	20 24.9	17 41.0	- 4 25.1	+0.9458	0.5987	0.0262	+70	+22
Lalande 33540	6.1	1.73	6.4	18 41.3	17 49.8	- 4 16.7	-0.8097	0.5988	0.0258	-28	-90
B. A. C. 6195	6.4	1.73	6.3	18 29.7	18 37.1	- 3 31.1	-1.0258	0.5988	0.0241	-44	-90
B. A. C. 6201	6.4	-1.74	+6.2	-18 39.3	19 6.8	- 3 2.7	-0.8764	0.5987	-0.0230	-33	-90
Y Sagittarii	Var.	1.75	6.2	18 54.0	20 10.4	- 2 1.5	-0.6498	0.5988	0.0207	-19	-86
21 Sagittarii	5.0	1.78	6.3	20 35.4	21 43.9	- 0 31.6	+1.0376	0.5987	0.0173	+69	+29
Mayer 748	5.7	1.77	+5.8	18 47.2	23 42.0	+ 1 21.9	-0.8251	0.5986	-0.0130	-30	-90
				NEW	*MOON.*						
42 Aquarii	5.5	-1.66	-5.6	-13 18.1	**26** 9 5.0	- 1 46.4	+1.2587	0.5545	+0.1544	+77	+50
SATURN	. .	. . .	. .	12 11.9	3 2.8	+ 1 5.5	+0.5536	0.5480	0.1555	+66	- 5
σ Aquarii	4.8	1.59	6.0	11 9.6	6 36.7	+ 4 32.5	+0.0215	0.5504	0.1606	+33	-34
58 Aquarii	6.4	1.59	6.0	11 23.3	7 6.0	+ 5 0.8	+0.3423	0.5502	0.1610	+52	-17
70 Aquarii	6.1	-1.54	-6.8	-11 3.2	15 8.6	-11 12.1	+1.3112	0.5454	+0.1675	+79	+59
h^1 Aquarii	5.4	1.44	7.0	8 12.2	23 14.8	- 3 21.3	-0.3500	0.5409	0.1730	+14	-57
φ Aquarii	4.6	1.38	7.0	6 33.5	**27** 3 45.7	+ 1 1.2	-1.3268	0.5385	0.1756	-63	-90
χ Aquarii	5.3	1.40	7.5	8 14.5	5 0.5	+ 2 13.6	+0.6979	0.5379	0.1763	+81	+ 3
B. A. C. 8129	6.3	1.36	7.3	6 25.4	6 55.1	+ 4 4.7	-0.9157	0.5369	0.1773	-18	-90
24 Piscium	6.1	-1.20	-7.8	- 3 40.8	23 8.5	- 4 11.7	-0.9498	0.5295	+0.1834	-20	-90
27 Piscium	5.1	1.18	8.2	4 4.8	**28** 2 4.9	- 1 20.4	+0.0232	0.5284	0.1841	+36	-34
29 Piscium	5.1	1.16	8.2	3 33.2	3 41.5	+ 0 13.3	-0.2509	0.5277	0.1844	+21	-50
4 Ceti	6.3	1.13	8.3	3 4.5	6 43.7	+ 3 10.1	-0.2097	0.5266	0.1850	+24	-48
5 Ceti	6.3	1.13	8.2	2 58.4	6 58.2	+ 3 24.1	-0.2753	0.5267	0.1851	+20	-52
B. A. C. 81	6.3	-1.05	-8.8	- 2 44.5	15 24.2	+11 35.2	+1.0391	0.5238	+0.1859	+87	+25
10 Ceti	6.4	1.03	8.2	0 34.3	16 30.1	-11 20.8	-1.1202	0.5235	0.1858	-32	-90
14 Ceti	5.4	0.99	8.6	- 1 1.5	21 9.1	- 6 49.9	+0.2370	0.5222	0.1860	+49	-22
26 Ceti	6.0	0.83	8.9	+ 0 51.6	**29** 12 0.2	+ 7 35.3	+0.9297	0.5193	0.1842	+90	+18
33 Ceti	6.1	0.80	8.8	1 56.6	15 34.0	+11 3.0	+0.3975	0.5187	0.1835	+60	-14
f Piscium	5.3	-0.75	-8.6	+ 3 7.0	19 23.6	- 9 14.0	-0.1921	0.5184	+0.1825	+25	-46
Lalande 2632	6.5	0.70	8.9	3 2.7	**30** 0 12.4	- 4 33.5	+0.7625	0.5180	0.1811	+90	+ 7
ν Piscium	4.6	0.62	8.6	5 0.6	7 54.0	+ 2 54.9	-0.0185	0.5178	0.1782	+34	-36
Piazzi i, 249	6.5	0.49	8.4	7 17.0	20 16.6	- 9 3.9	-0.3575	0.5182	0.1722	+16	-55
64 Ceti	5.8	0.45	8.2	8 7.7	23 42.7	- 5 43.7	-0.7035	0.5186	0.1703	- 3	-82
ξ^1 Ceti	4.6	-0.44	-8.2	+ 8 24.2	**31** 0 34.3	- 4 53.6	-0.8623	0.5187	+0.1698	-13	-82
25 Arietis	6.5	0.36	8.0	9 46.8	8 8.8	+ 2 27.7	-1.1155	0.5195	0.1650	-32	-80
ξ^2 Ceti	4.3	0.37	8.6	8 2.2	8 33.1	+ 2 51.3	+0.8790	0.5198	0.1647	+90	+17
B. F. 310	6.3	0.35	8.3	9 8.6	9 17.6	+ 3 34.5	-0.2242	0.5200	0.1642	+23	-46
85 Ceti	6.3	0.28	8.1	10 20.2	16 1.8	+10 7.0	-0.4563	0.5212	0.1594	+11	-61
μ Ceti	4.3	-0.27	-8.4	+ 9 42.9	17 18.3	+11 21.1	+0.4366	0.5216	+0.1584	+63	- 9

FEBRUARY.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
W. B. ii, 1033	5.8	-0.15	-7.7	+12 49.4	**1** 4 24.6	- 1 51.9	-1.2931	0.5244	+0.1493	-56	-77
B. D.+12°, 473	6.2	0.06	8.2	12 17.7	13 32.4	+ 6 59.6	+0.6165	0.5273	0.1407	+80	+ 4
f Tauri	4.3	-0.02	8.2	12 36.8	16 57.0	+10 18.1	+0.7384	0.5284	0.1373	+80	+12
B. D. +14°, 657	5.9	+0.16	8.0	14 54.6	**2** 11 23.9	+ 4 11.1	+0.5491	0.5355	0.1169	+73	+ 3
48 Tauri	6.3	0.20	8.1	15 9.8	15 22.6	+ 8 2.6	+0.7230	0.5372	0.1117	+82	+13
γ Tauri	3.9	+0.22	-8.1	+15 23.9	17 21.0	+ 9 57.4	+0.6817	0.5381	+0.1092	+90	+12
δ^1 Tauri	3.9	0.25	7.5	17 19.2	18 51.5	+11 25.0	-1.2691	0.5387	0.1072	-56	-73
63 Tauri	5.7	0.25	7.8	16 33.4	19 6.5	+11 39.5	-0.4016	0.5388	0.1069	+13	-50
δ^2 Tauri	4.9	0.25	7.6	17 13.5	19 25.7	+11 58.1	-1.1025	0.5390	0.1065	-33	-73
70 Tauri	6.4	0.25	8.1	15 43.5	20 12.0	-11 17.1	+0.6292	0.5393	0.1055	+82	+ 9
71 Tauri	4.6	+0.26	-8.2	+15 24.2	20 33.6	-10 56.1	+1.0201	0.5395	+0.1050	+90	+34

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

FEBRUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° '	d h m	h m				°	°
75 Tauri	5.2	+0.27	-8.0	+16 8.9	**2** 21 34.4	- 9 57.3	+0.3072	0.5399	+0.1037	+55	- 9
θ^1 Tauri	4.2	0.27	8.1	15 45.1	21 38.5	- 9 53.2	+0.7494	0.5401	0.1036	+90	+16
θ^2 Tauri	3.6	0.26	8.1	15 39.6	21 41.1	- 9 50.7	+0.8541	0.5401	0.1035	+90	+23
80 Tauri	5.8	0.27	8.2	15 25.9	22 24.7	- 9 8.5	+1.1812	0.5403	0.1026	+90	+49
Bradley 619	4.8	0.28	8.0	15 59.3	22 36.3	- 8 57.3	+0.5892	0.5403	0.1023	+77	+ 7
81 Tauri	5.5	+0.27	-8.2	+15 29.1	22 39.4	- 8 54.3	+1.1462	0.5404	+0.1022	+90	+46
85 Tauri	6.0	0.28	8.2	15 38.9	23 14.8	- 8 20.0	+1.0273	0.5407	0.1014	+90	+35
B.D. +17°, 750	6.2	0.30	7.6	17 49.0	**3** 0 1.9	- 7 34.3	-1.2756	0.5410	0.1004	-58	-72
B. A. C. 1406	6.5	0.29	8.0	16 7.4	0 6.2	- 7 30.2	+0.5910	0.5410	0.1003	+79	+ 7
α Tauri	1.1	0.30	8.0	16 19.1	1 12.3	- 6 26.1	+0.4868	0 5415	0.0988	+68	+ 2
89 Tauri	5.8	+0.31	-8.2	+15 50.6	2 17.8	- 5 22.7	+1.1156	0.5421	+0.0973	+90	+43
σ^2 Tauri	4.9	0.31	8.2	15 43.8	2 50.4	- 4 51.1	+1.2922	0.5423	0.0965	+90	+70
Bradley 686	5.7	0.40	8.1	17 0.3	11 31.0	+ 3 32.9	+0.6766	0.5462	0.0841	+89	+14
m Tauri	5.0	0.45	7.8	18 31.0	16 15.0	+ 8 7.7	-0.5965	0.5484	0.0770	+ 2	-61
115 Tauri	5.3	0.52	8.2	17 52.8	**4** 1 33.6	- 6 52.0	+0.7482	0.5526	0.0624	+90	+20
119 Tauri	4.9	+0.55	-8.1	+18 31.4	3 54.0	- 4 36.3	+0.1895	0.5537	+0.0586	+47	-10
120 Tauri	5.6	0.55	8.2	18 28.3	4 30.8	- 4 0.7	+0.2807	0.5539	0.0576	+53	- 5
B. D. +19°, 1110	6.0	0.62	8.0	19 50.5	13 11.9	+ 4 23.1	-0.7690	0.5577	0.0430	- 9	-70
χ^1 Orionis	4.5	0.63	8.0	20 15.4	14 6.8	+ 5 16.1	-1.1799	0.5581	0.0414	-44	-70
χ^2 Orionis	5.8	0.63	8.1	19 43.8	14 22.3	+ 5 31.1	-0.5976	0.5582	0.0410	+ 1	-58
χ^3 Orionis	5.1	+0.66	-8.2	+19 41.4	18 15.8	+ 9 16.7	-0.4080	0.5598	+0.0342	+12	-43
χ^4 Orionis	4.7	0.67	8.1	20 8.3	18 27.9	+ 9 28.4	-0.8862	0 5598	0.0339	-17	-70
68 Orionis	5.7	0.69	8.3	19 48.6	22 9.3	-10 57.8	-0.4165	0.5614	0.0273	+12	-43
B. D.+18°, 1129	6.2	0.69	8.6	18 42.2	22 52.2	-10 16.2	+0.7970	0.5616	0.0261	+90	+27
71 Orionis	5.1	0.70	8.5	19 11.2	23 27.1	- 9 42.5	+0.2901	0.5619	0.0250	+53	- 1
16 Geminorum	6.2	+0.74	-8.3	+20 33.0	**5** 5 19.9	- 4 1.9	-1.0629	0.5640	+0.0144	-32	-70
ν Geminorum	4.0	0.75	8.4	20 16.2	5 47.6	- 3 35.1	-0.7539	0.5642	+0.0136	- 8	-70
ζ Geminorum	Var.	0.84	8.7	20 42.4	21 26.8	+11 31.5	-1.2291	0.5692	-0.0156	-52	-69
61 Geminorum	5.8	0.89	8.9	20 26.6	**6** 7 30.4	- 2 46.1	-1.1962	0.5717	0.0347	-47	-70
g Geminorum	5.0	0.92	9.3	18 44.2	15 56.3	+ 5 21.9	+0.2541	0.5733	0.0507	+51	- 6
B. A. C. 2605	6.2	+0.93	-9.2	+19 33.8	18 27.9	+ 7 48.1	-0 7533	0.5737	-0.0555	- 8	-70
3 Cancri	5.7	0.94	9.5	17 33.8	22 21.0	+11 33.0	+1.1267	0.5742	0.0628	+90	+48
B. F. 1128	6.1	0.94	9.4	19 6.3	**7** 0 3.3	-10 48.4	-0.6077	0.5744	0.0660	+ 1	-61
ζ Cancri	4.6	0.95	9.5	17 55.7	3 18.7	- 7 40.0	+0.4056	0.5747	0.0720	+62	0
d^1 Cancri	5.7	0.96	9.5	18 37.9	8 9.4	- 2 59.7	-0.7028	0.5750	0.0810	- 5	-70
d^2 Cancri	6.2	+0.96	-9.6	+17 21.2	9 15.3	- 1 56.1	+0.5477	0.5751	-0.0830	+74	+ 7
θ Cancri	5.5	0.96	9.5	18 24.6	11 44.2	+ 0 27.4	-0.7703	0.5752	0.0875	- 9	-72
54 Cancri	6.3	0.97	9.6	15 41.8	20 12.9	+ 8 38.2	+1 2579	0.5753	0.1025	+90	+60
B. A. C. 3029	6.5	0.97	9.6	17 35.2	22 4.8	+10 25.9	-0.9062	0.5753	0.1057	-18	-72
o^1 Cancri	5.1	0.97	9.6	15 40.9	22 54.7	+11 14.1	+0.9907	0.5753	0.1071	+90	+33
o^2 Cancri	5.7	+0.97	-9.6	+15 56.4	23 3.3	+11 22.3	+0.7054	0.5753	-0.1074	+86	+14
π^1 Cancri	6.4	0.97	9.6	15 22.4	**8** 5 29.0	- 6 25.7	+0.5687	0.5750	0.1181	+75	+ 5
π^2 Cancri	5.6	0.97	9.6	15 19.7	6 44.3	- 5 13.1	+0.4638	0.5749	0.1202	+66	- 2
B. D.+15°, 2027	6.4	0.97	9.5	15 46.1	9 21.4	- 2 41.6	-0.3114	0.5748	0.1244	+18	-45
7 Leonis	6.2	0.97	9.4	14 47.8	15 44.4	+ 3 27.8	-0.1318	0.5742	0.1343	+28	-35
11 Leonis	6.5	+0.97	-9.4	+14 46.2	16 40.5	+ 4 21.9	-0.2300	0.5741	-0.1358	+23	-41
ψ Leonis	5.6	0.96	9.4	14 27.0	19 10.1	+ 6 46.2	-0.2419	0.5739	0.1394	+22	-42
ν Leonis	5.0	0.95	9.2	12 53.4	**9** 1 31.2	-11 6.3	+0.4499	0.5731	0.1484	+64	- 5
α Leonis	1.4	0.94	9.1	12 25.5	5 58.9	- 6 48.0	+0.2532	0.5725	0.1544	+50	-16
45 Leonis	5.8	0.92	8.7	10 14.4	14 27.4	+ 1 22.6	+1.1389	0.5714	0.1649	+90	+38
ρ Leonis	3.8	+0.91	-8.5	+ 9 47.3	16 44.0	+ 3 34.3	+1.2216	0.5710	-0.1676	+90	+47
l Leonis	5.2	0.88	8.4	11 2.4	23 59.2	+10 34.3	-1.3028	0.5700	0.1753	-56	-79
χ Leonis	4.6	0.86	7.7	7 50.5	**10** 6 59.7	- 6 39.9	+0.7089	0.5690	0.1819	+89	+ 6
Piazzi xi, 12	5.8	0.83	7.6	8 34.4	10 58.5	- 2 49.4	-0.7660	0.5685	0.1852	- 7	-81
σ Leonis	4.2	0.83	7.2	6 32.6	14. 8.7	+ 0 14.2	+0.7094	0.5681	0.1876	+90	+ 5
b Virginis	5.2	+0.73	-5.9	+ 4 10.6	**11** 7 26.7	- 7 3.8	-0.2300	0.5663	-0.1975	+23	-47

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

FEBRUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° '	d h m	h m				°	°
10 Virginis	6.2	+0.71	-5.3	+ 2 25.5	**11** 11 47.6	- 2 52.0	+0.6835	0.5660	-0.1991	+86	+ 2
γ Virginis (*mean*)	2.9	0.62	3.6	- 0 56.1	**12** 2 6.3	+10 57.0	+1.2091	0.5656	0.2015	+89	+40
65 Virginis	6.0	0.48	1.5	4 26.0	20 38.1	+ 4 50.3	+1.0232	0.5665	0.1987	+86	+24
66 Virginis	5.7	0.47	1.4	4 40.4	21 10.6	+ 5 21.7	+1.1581	0.5666	0.1985	+85	+35
80 Virginis	5.6	0.42	1.0	4 55.1	**13** 2 3.0	+10 4.0	+0.4420	0.5671	0.1966	+62	-11
Piazzi xiii, 174	6.4	+0.38	-0.7	- 5 1.5	5 46.0	-10 20.8	-0.1761	0.5676	-0.1948	+25	-46
n Virginis	6.5	0.37	-0.2	6 22.1	7 42.0	- 8 28.8	+0.8041	0.5678	0.1937	+84	+ 9
Lalande 26147	6.5	0.24	+0.7	7 6.1	20 45.5	+ 4 7.2	-0.9304	0.5700	0.1848	-20	-90
ξ¹ Libræ	5.7	0.07	3.0	11 30.9	**14** 12 33.7	- 4 38.3	+0.7224	0.5736	0.1696	+78	+ 5
ξ² Libræ	5.7	0.06	2.9	11 1.8	13 35.7	- 3 38.6	+0.0577	0.5739	0.1685	+35	-32
17 Libræ	6.4	+0.05	+2.8	-10 46.6	14 13.6	- 3 2.0	-0.3046	0.5740	-0.1678	+15	-54
18 Libræ	5.9	+0.04	2.8	10 45.9	14 31.3	- 2 44.9	-0.3649	0.5741	0.1674	+12	-58
Mayer 616	5.9	-0.07	3.7	12 2.0	**15** 1 13.7	+ 7 34.4	-0.8068	0.5770	0.1542	-15	-90
γ Libræ	4.1	0.14	4.7	14 28.5	6 9.6	-11 40.5	+0.9224	0.5783	9.1475	+76	+18
Bradley 1987	6.5	0.18	4.9	14 44.4	9 30.5	- 8 26.8	+0.7064	0.5792	0.1427	+75	+ 4
η Libræ	5.5	-0.19	+5.1	-15 22.3	9 46.8	- 8 11.2	+1.3079	0.5793	-0.1423	+75	+66
W. B. xv, 839	6.2	0.23	4.6	13 50.9	13 0.2	- 5 4.9	-0.6875	0.5801	0.1374	-10	-90
W. B. xv, 910	6.4	0.26	4.8	14 7.3	14 56.3	- 3 13.0	-0.6737	0.5807	0.1345	- 9	-87
B. D.-14°,4314	6.2	0.26	4.9	14 33.2	15 3.9	- 3 5.7	-0.2533	0.5807	0.1343	+14	-51
48 Libræ	4.6	0.27	4.8	14 0.4	15 45.8	- 2 25.3	-0.9009	0.5809	0.1332	-24	-90
49 Libræ	5.4	-0.28	+5.5	-16 15.3	16 39.7	- 1 33.4	+1.2614	0.5812	-0.1318	+74	+53
W. B. xvi, 140	6.1	0.37	5.1	14 36.7	23 10.6	+ 4 43.1	-1.2308	0.5828	0.1212	-54	-90
φ Ophiuchi	4.4	0.45	5.7	16 24.4	**16** 5 32.0	+10 50.3	-0.1442	0.5844	0.1103	+17	-44
24 Scorpii	5.0	0.51	6.1	17 33.5	9 51.2	- 9 0.2	+0.5686	0.5855	0.1026	+61	- 3
Piazzi xvi, 232	6.5	0.59	5.7	16 39.3	15 51.2	- 3 13.7	-0.9340	0.5868	0 0915	-30	-90
B. A. C. 5712	6.5	-0.61	+6.2	-18 6.0	17 22.0	- 1 46.3	+0.4027	0.5870	-0.0886	+47	-13
29 Ophiuchi	6.4	0.64	6.2	18 44.7	18 13.9	- 0 56.3	+0.9843	0.5872	0.0870	+71	+24
Piazzi xvi, 297	6.2	0.66	5.9	17 29.0	20 53.3	+ 1 37.0	-0.5273	0.5877	0.0819	- 7	-72
Piazzi xvii, 43	6.0	0.73	5.9	17 39.4	**17** 1 40.8	+ 6 13.8	-0.7208	0.5885	0.0725	-18	-79
B.D.-18°,4516	6.3	0.75	6.3	18 21.4	3 36.8	+ 8 5.4	-0.1423	0.5887	0.0689	+13	-44
Mayer 722	6.3	-0.93	+5.7	-18 47.1	16 27.0	- 3 33.6	-0.4205	0.5899	-0.0425	- 4	-63
B. A. C. 6081	6.4	0.95	6.0	20 19.9	18 5.9	- 1 58.4	+1.0967	0.5900	0.0391	+70	+35
Lalande 33327	6.3	1.00	5.8	19 51.5	22 42.9	+ 2 28.0	+0.4554	0.5901	0.0293	+46	-10
16 Sagittarii	5.9	1.02	5.7	20 24.9	**18** 0 20.0	+ 4 1.5	+0.9810	0.5901	0.0261	+70	+24
Lalande 33540	6.1	1.03	5.3	18 41.4	0 29.0	+ 4 10.1	-0.7939	0.5901	0.0257	-27	-90
B. A. C. 6195	6.4	-1.04	+5.2	-18 29.8	1 17.6	+ 4 56.9	-1.0126	0.5901	-0.0241	-43	-90
B. A. C. 6201	6.4	1.04	5.2	18 39.3	1 48.0	+ 5 26.1	-0.8618	0.5901	0.0230	-32	-90
Y Sagittarii	Var.	1.06	5.2	18 54.0	2 53.3	+ 6 29.0	-0.6330	0.5901	0.0207	-18	-84
21 Sagittarii	5.0	1.08	5.5	20 35.4	4 29.2	+ 8 1.2	+1.0726	0.5900	0.0174	+69	+32
Mayer 748	5.7	1.10	5.0	18 47.2	6 30.4	+ 9 57.8	-0.8114	0.5899	0.0131	-29	-90
Mayer 750	5.0	-1.11	+4.9	-18 28.0	7 1.3	+10 27.5	-1.1482	0.5898	-0.0120	-55	-90
29 Sagittarii	5.3	1.19	4.8	20 25.8	14 29.2	- 6 21.3	+0.8420	0.5890	+0.0037	+70	+16
ξ¹ Sagittarii	5.1	1.22	4.6	20 46.7	17 38.7	- 3 19.1	+1.2233	0.5887	0.0103	+69	+51
Lalande 35497	6.1	1.25	4.2	19 22.8	20 2.0	- 1 1.2	-0.1872	0.5883	0.0153	+ 6	-47
B.D.-19°, 5275	6.4	1.25	4.1	19 14.3	20 3.4	- 0 59.9	-0.3343	0.5883	0.0153	- 2	-56
B.D.-18°,5206	6.4	-1.26	+3.9	-18 52.9	21 43.7	+ 0 36.7	-0.6730	0.5880	+0.0188	-21	-90
Bradley 2402	5.4	1.27	4.0	19 26.2	22 11.4	+ 1 3.3	-0.0918	0.5879	0.0198	+12	-41
B. A C. 6550	6.3	1.27	4.2	19 57.1	22 48.7	+ 1 39.2	+0.4518	0.5878	0.0210	+45	-10
d Sagittarii	5.1	1.31	3.6	19 7.2	**19** 2 4.5	+ 4 47.6	-0.3273	0.5871	0.0277	0	-56
B. A. C. 6616	6.4	1.32	3.5	19 24.6	3 43.6	+ 6 23.0	+0.0208	0.5867	0.0311	+19	-34
ρ² Sagittarii	6.0	-1.32	+3.3	-18 28.9	3 49.9	+ 6 29.1	-0.9350	0.5867	+0.0313	-36	-90
Mayer 814	6.1	1.37	2.9	19 3.6	9 54.7	-11 39.7	-0.1098	0.5852	0.0436	+13	-42
Mayer 815	5.8	1.38	2.7	18 26.4	10 11.0	-11 24.0	-0.7408	0.5851	0.0441	-22	-90
f Sagittarii	5.1	1.41	2.7	19 59.2	14 4.2	- 7 39.5	+1.0498	0.5839	0.0518	+70	+30
57 Sagittarii	6.0	1.42	2.4	19 17.0	16 32.0	- 5 17.1	+0.4542	0.5831	0.0566	+48	-10
π Capricorni	5.1	-1.51	+0.7	-18 31.2	**20** 7 30.3	+ 9 8.5	+0.7221	0.5775	+0.0845	+72	+ 6

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

FEBRUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N.	S.
		Δα	Δδ								
		s	"	° '	d h m	h m				°	°
ρ Capricorni	5.0	−1.51	+ 0.5	−18 7.5	**20** 8 10.6	+ 9 47.3	+0.3668	0.5772	+0.0857	+45	−15
o Capricorni	5.6	1.52	0.6	18 53.7	8 36.7	+10 12.5	+1.2076	0.5770	0.0864	+71	+47
Piazzi xx, 194	6.2	1.50	0.0	16 50.9	11 4.4	−11 25.1	−0.7093	0.5760	0.0907	−16	−85
v Capricorni	5.3	1.54	+ 0.1	18 28.2	13 0.8	− 9 32.9	+1.1633	0.5751	0.0940	+71	+41
B. A. C. 7145	5.9	1.51	− 0.3	16 27.5	13 15.5	− 9 18.6	−0.9153	0.5750	0.0945	−29	−90
				NEW	*MOON.*						
4 Ceti	6.3	−1.31	− 8.9	− 3 4.5	**24** 15 23.4	−10 22.3	−0.1997	0.5294	+0.1861	+24	−47
5 Ceti	6.3	1.31	8.9	2 58.4	15 37.8	−10 8.3	−0.2651	0.5294	0.1862	+21	−51
B. A. C. 81	6.3	1.27	9.4	2 44.5	**25** 0 0.6	− 2 0.5	+1.0496	0.5269	0.1872	+87	+26
10 Ceti	6.4	−1.25	− 9.2	− 0 34.4	1 6.0	− 0 57.0	−1.1077	0.5266	+0.1872	−31	−90
14 Ceti	5.4	1.22	9.5	− 1 1.5	5 43.1	+ 3 31.9	+0.2493	0.5254	0.1873	+50	−22
26 Ceti	6.0	1.12	9.9	+ 0 51.6	20 27.6	− 6 9.4	+0.9441	0.5226	0.1857	+90	+18
33 Ceti	6.1	1.10	9.9	1 56.6	23 59.7	− 2 43.5	+0.4136	0.5220	0.1849	+61	−13
f Piscium	5.3	1.06	9.8	3 7.0	**26** 3 47.5	+ 0 57.7	−0.1744	0.5215	0.1839	+26	−45
Lalande 2632	6.5	−1.04	−10.0	+ 3 2.7	8 34.2	+ 5 36.1	+0.7801	0.5211	+0.1824	+90	+ 8
ν Piscium	4.6	0.97	9.9	5 0.6	16 12.5	−10 58.8	+0.0020	0.5207	0.1794	+35	−34
Piazzi i, 249	6.5	0.87	9.7	7 16.9	**27** 4 30.6	+ 0 57.9	−0.3336	0.5207	0.1733	+17	−54
64 Ceti	5.8	0.84	9.6	8 7.6	7 55.6	+ 4 17.0	−0.6786	0.5208	0.1713	− 2	−81
ξ^1 Ceti	4.6	0.83	9.6	8 24.2	8 47.0	+ 5 6.9	−0.8371	0.5209	0.1708	−12	−82
25 Arietis	6.5	−0.77	− 9.4	+ 9 46.7	16 19.6	−11 33.6	−1.0888	0.5215	+0.1658	−30	−80
ξ^2 Ceti	4.3	0.77	9.9	8 2.2	16 43.8	−11 10.1	+0.9055	0.5215	0.1655	+90	+18
B. F. 310	6.3	0.76	9.6	9 8.6	17 28.1	−10 27.1	−0.1974	0.5216	0.1650	+24	−44
85 Ceti	6.3	0.70	9.5	10 20.3	**28** 0 11.2	− 3 55.8	−0.4281	0.5225	0.1600	+12	−59
μ Ceti	4.3	0.69	9.7	9 42.9	1 27.6	− 2 41.6	+0.4654	0.5227	0.1590	+65	− 7
W. B. ii, 1033	5.8	−0.59	− 9.0	+12 49.4	12 33.4	+ 8 4.7	−1.2631	0.5247	+0.1496	−50	−77
B. D. +12°,473	6.2	−0.51	− 9.4	+12 17.6	21 42.0	− 7 3.0	+0.6509	0.5268	+0.1408	+83	+ 6
MARCH.											
f Tauri	4.3	−0.48	− 9.3	+12 36.7	**1** 1 7.2	− 3 43.9	+0.7739	0.5277	+0.1373	+90	+14
B. D.+14°,657	5.9	0.30	8.9	14 54.5	19 39.7	− 9 45.1	+0.5880	0.5333	0.1163	+77	+ 5
48 Tauri	6.3	0.26	8.9	15 9.8	23 40.6	− 5 51.5	+0.7634	0.5346	0.1114	+90	+16
γ Tauri	3.9	0.24	8.8	15 23.9	**2** 1 40.0	− 3 55.8	+0.7224	0.5354	0.1088	+82	+14
δ^1 Tauri	3.9	0.22	8.2	17 19.2	3 11.2	− 2 27.5	−1.2357	0.5358	0.1068	−49	−73
63 Tauri	5.7	−0.22	− 8.5	+16 33.4	3 26.3	− 2 12.8	−0.3648	0.5359	+0.1065	+15	−47
δ^2 Tauri	4.9	0.21	8.2	17 13.5	3 45.7	− 1 54.1	−1.0685	0.5360	0.1061	−30	−73
70 Tauri	6.4	0.20	8.8	15 43.4	4 32.5	− 1 8.8	+0.6701	0.5363	0.1050	+88	+11
71 Tauri	4.6	0.20	8.9	15 24.2	4 54.2	− 0 47.7	+1.0623	0.5365	0.1046	+90	+39
75 Tauri	5.2	0.19	8.6	16 8.8	5 55.7	+ 0 11.9	+0.3471	0.5369	0.1032	+57	− 7
θ^1 Tauri	4.2	−0.19	− 8.8	+15 45.1	5 59.8	+ 0 15.9	+0.7910	0.5369	+0.1031	+90	+19
θ^2 Tauri	3.6	0.19	8.8	15 39.6	6 2.5	+ 0 18.5	+0.8962	0.5369	0.1031	+90	+25
80 Tauri	5.8	0.18	8.9	15 25.8	6 46.4	+ 1 1.0	+1.2247	0.5372	0.1021	+90	+55
Bradley 619	4.8	0.18	8.7	15 59.2	6 58.2	+ 1 12.4	+0.6302	0.5372	0.1018	+82	+ 9
81 Tauri	5.5	0.18	8.9	15 29.1	7 1.3	+ 1 15.4	+1.1896	0.5372	0.1018	+90	+50
85 Tauri	6.0	−0.18	− 8.8	+15 38.9	7 36.9	+ 1 49.9	+1.0703	0.5375	+0.1010	+90	+39
B. D. +17°,750	6.2	0.16	8.1	17 49.0	8 24.6	+ 2 36.2	−1.2420	0.5378	0.0999	−51	−72
B. A. C. 1406	6.5	0.17	8.7	16 7.4	8 28.9	+ 2 40.3	+0.6324	0.5378	0.0998	+83	+10
a Tauri	1.1	0.15	8.7	16 10.1	9 35.8	+ 3 45.2	+0.5279	0.5382	0.0983	+72	+ 4
89 Tauri	5.8	0.14	8.8	15 50.6	10 41.9	+ 4 49.2	+1.1594	0.5386	0.0968	+90	+48
Bradley 686	5.7	−0.05	− 8.5	+17 0.3	20 1.4	−10 8.9	+0.7198	0.5422	+0.0836	+81	+16
m Tauri	5.0	+0.01	8.1	18 31.0	**3** 0 49.0	− 5 30.5	−0.5593	0.5440	0.0765	+ 4	−58
115 Tauri	5.3	0.10	8.4	17 52.8	10 15.2	+ 3 37.5	+0.7928	0.5477	0.0619	+90	+23
119 Tauri	4.9	0.12	8.2	18 31.4	12 37.5	+ 5 55.2	+0.2312	0.5488	0.0581	+50	− 8
120 Tauri	5.6	0.13	8.2	18 28.3	13 14.8	+ 6 31.3	+0.3228	0.5489	0.0571	+56	3
B. D.+19°,1110	6.0	+0.22	− 7.8	+19 50.5	22 3.6	− 8 57.3	−0.7329	0.5523	+0.0426	− 7	−70

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MARCH.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x′	y′	N.	S.
		s	″	° ′	d h m	h m				°	°
χ¹ Orionis	4.5	+0.23	-7.7	+20 15.4	3 22 59.4	- 8 3.3	-1.1461	0.5526	+0.0410	-40	-70
χ² Orionis	5.8	0.23	7.9	19 43.8	23 15.1	- 7 48.2	-0.5607	0.5527	0.0406	+ 3	-55
χ³ Orionis	5.1	0.27	8.0	19 41.4	4 3 12.1	- 3 59.1	-0.3702	0.5542	0.0339	+14	-41
χ⁴ Orionis	4.7	0.27	7.8	20 8.3	3 24.5	- 3 47.0	-0.8510	0.5543	0.0335	-15	-70
68 Orionis	5.7	0.31	8.0	19 48.6	7 9.3	- 0 9.8	-0.3789	0.5557	0.0270	+14	-41
B. D.+18°, 1129	6.2	+0.32	-8.3	+18 42.2	7 52.8	+ 0 32.3	+0.8412	0.5560	+0.0258	+90	+30
71 Orionis	5.1	0.32	8.2	19 11.2	8 28.3	+ 1 6.6	+0.3315	0.5562	0.0247	+56	+ 1
16 Geminorum	6.2	0.38	7.8	20 33.1	14 26.6	+ 6 52.8	-1.0294	0.5583	0.0142	-28	-69
ν Geminorum	4.0	0.39	7.9	20 16.2	14 54.7	+ 7 20.0	-0.7188	0.5585	+0.0133	- 6	-69
ζ Geminorum	Var.	0.54	7.9	20 42.4	5 6 48.0	- 1 19.3	-1.1982	0.5637	-0.0156	-47	-69
61 Geminorum	5.8	+0.63	-8.1	+20 26.6	17 0.0	+ 8 31.5	-1.1663	0.5665	-0.0346	-42	-70
g Geminorum	5.0	0.70	8.6	18 44.2	6 1 32.1	- 7 14.2	+0.2872	0.5685	0.0506	+53	- 4
B. A. C. 2605	6.2	0.72	8.4	19 33.8	4 5.5	- 4 46.2	-0.7240	0.5691	0.0553	- 6	-70
3 Cancri	5.7	0.75	8.9	17 33.8	8 1.0	- 0 59.0	+1.1599	0.5698	0.0627	+90	+52
B. F. 1128	6.1	0.76	8.5	19 6.3	9 44.3	+ 0 40.7	-0.5794	0.5701	0.0658	+ 3	-59
ζ Cancri	4.6	+0.79	-8.8	+17 55.8	13 1.6	+ 3 51.0	+0.4350	0.5707	-0.0719	+64	+ 2
d¹ Cancri	5.7	0.82	8.7	18 37.9	17 54.7	+ 8 33.7	-0.6771	0.5715	0.0808	- 3	-68
d² Cancri	6.2	0.83	9.0	17 21.2	19 1.0	+ 9 37.7	+0.5748	0.5717	0.0829	+76	+ 9
θ Cancri	5.5	0.85	8.7	18 24.6	21 31.0	-11 57.7	-0.7459	0.5721	0.0874	- 7	-72
54 Cancri	6.3	0.91	9.3	15 41.8	7 6 2.4	- 3 44.4	+1.2797	0.5730	0.1025	+90	+65
B. A. C. 3029	6.5	+0.92	-8.9	+17 35.2	7 54.6	- 1 56.2	-0.8851	0.5732	-0.1058	-16	-72
ο¹ Cancri	5.1	0.92	9.3	15 40.9	8 44.7	- 1 7.9	+1.0109	0.5733	0.1072	+90	+34
ο² Cancri	5.7	0.92	9.2	15 56.4	8 53.3	- 0 59.6	+0.7257	0.5733	0.1075	+81	+15
π¹ Cancri	6.4	0.95	9.2	15 22.4	15 19.7	+ 5 13.0	+0.5853	0.5737	0.1184	+77	+ 6
π² Cancri	5.6	0.96	9.3	15 19.8	16 35.1	+ 6 25.7	+0.4799	0.5738	0.1205	+67	0
B.D.+15°, 2027	6.4	+0.98	-9.2	+15 46.1	19 12.2	+ 8 57.3	-0.2955	0.5739	-0.1248	+19	-44
7 Leonis	6.2	1.01	9.2	14 47.8	8 1 34.6	- 8 53.9	-0.1197	0.5742	0.1349	+29	-35
11 Leonis	6.5	1.01	9.2	14 46.2	2 30.5	- 8 0.0	-0.2180	0.5742	0.1363	+23	-42
ψ Leonis	5.6	1.02	9.2	14 27.0	4 59.5	- 5 36.3	-0.2311	0.5743	0.1401	+22	-42
ν Leonis	5.0	1.05	9.4	12 53.4	11 18.6	+ 0 29.3	+0.4540	0.5744	0.1494	+65	- 5
α Leonis	1.4	+1.06	-9.3	+12 25.5	15 44.3	+ 4 45.5	+0.2552	0.5743	-0.1556	+51	-16
45 Leonis	5.8	1.09	9.3	10 14.4	9 0 7.8	-11 9.0	+1.1293	0.5742	0.1665	+90	+37
ρ Leonis	3.8	1.10	9.3	9 47.3	2 22.7	- 8 58.9	+1.2095	0.5741	0.1692	+90	+45
l Leonis	5.2	1.10	9.0	11 2.4	9 31.9	- 2 4.9	-1.3010	0.5741	0.1773	-56	-79
χ Leonis	4.6	1.12	8.9	7 50.5	16 25.6	+ 4 34.0	+0.6887	0.5740	0.1842	+88	+ 5
Piazzi xi, 12	5.8	+1.12	-8.8	+ 8 34.4	20 20.0	+ 8 20.0	-0.7754	0.5739	-0.1877	- 8	-81
σ Leonis	4.2	1.13	8.6	6 32.5	23 26.6	+11 20.1	+0.6832	0.5739	0.1903	+86	+ 4
b Virginis	5.2	1.12	7.8	4 10.6	10 16 21.0	+ 3 38.3	-0.2591	0.5734	0.2005	+21	-50
10 Virginis	6.2	1.12	7.5	+ 2 25.4	20 35.2	+ 7 43.5	+0.6394	0.5740	0.2027	+81	0
γ Virginis (*mean*)	2.9	1.10	6.4	- 0 56.1	11 10 30.0	- 2 51.4	+1.1461	0.5747	0.2050	+89	+34
65 Virginis	6.0	+1.05	-4.7	- 4 26.0	12 4 28.0	- 9 32.1	+0.9484	0.5762	0.2028	+86	+19
66 Virginis	5.7	1.05	4.6	4 40.4	4 59.5	- 9 1.7	+1.0810	0.5763	0.2027	+85	+28
80 Virginis	5.6	1.02	4.2	4 55.1	9 42.7	- 4 28.6	+0.3719	0.5766	0.2007	+58	-15
Piazzi xiii, 174	6.4	1.00	3.9	5 1.6	13 18.7	- 1 0.4	-0.2396	0.5774	0.1989	+21	-50
n Virginis	6.5	1.00	3.6	6 22.2	15 11.1	+ 0 47.9	+0.7250	0.5777	0.1978	+83	+ 4
Lalande 26147	6.5	+0.91	-2.5	- 7 6.1	13 3 50.2	-11 0.5	-0.9930	0.579[illegible]	0.1[illegible]85	-24	-90
ξ¹ Libræ	5.7	0.81	0.4	11 30.9	19 10.3	+ 3 45.8	+0.6290	0.5824	0.1727	+73	- 1
ξ² Libræ	5.7	0.79	0.4	11 1.8	20 10.6	+ 4 43.9	-0.0275	0.5826	0.1710	+30	-37
17 Libræ	6.4	0.78	0.4	10 46.7	20 47.5	+ 5 19.5	-0.3854	0.5827	0.1708	+11	-60
18 Libræ	5.9	0.78	-0.4	10 46.0	21 4.6	+ 5 36.0	0.4450	0.5827	0.1705	+ 7	-64
Mayer 616	5.9	+0.68	+0.6	-12 2.0	14 7 30.0	- 8 21.9	-0.8867	0.5847	0.1567	-20	-90
γ Libræ	4.1	0.65	1.6	14 28.5	12 18.7	- 3 44.0	+0.8208	0.5856	0.1497	+76	+11
Bradley 1987	6.5	0.61	1.9	14 44.5	15 34.9	- 0 35.1	+0.6064	0.5861	0.1447	+68	1
η Libræ	5.5	0.61	2.1	15 22.4	15 50.8	- 0 19.8	+1.2014	0.5862	0.1443	+75	+43
W.B. xv, 839	6.2	0.56	1.8	13 51.0	18 59.9	+ 2 42.2	0.774[illegible]	0.5867	0.1393	15	-90
W.B. xv, 910	6.4	+0.54	+2.0	-14 7.4	20 53.5	+ 4 31.5	0.7610	0.5870	-0.1363	14	-90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MARCH.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° ′	d h m	h m				°	°
B.D.−14°, 4314	6.2	+0.55	+2.2	−14 33.2	**14** 21 0.9	+ 4 38.6	−0.3448	0.5870	−0.1361	+ 9	−57
48 Libræ	4.6	0.53	2.0	14 0.5	21 42.0	+ 5 18.3	−0.9863	0.5871	0.1349	−30	−90
49 Libræ	5.4	0.53	2.7	16 15.4	22 34.7	+ 6 8.9	+1.1546	0.5873	0.1335	+74	+38
φ Ophiuchi	4.4	0.38	3.4	16 24.4	**15** 11 13.0	− 5 41.4	−0.2405	0.5889	0.1113	+12	−50
24 Scorpii	5.0	0.33	4.0	17 33.6	15 28.3	− 1 35.7	+0.4665	0.5893	0.1034	+53	− 9
Piazzi xvi, 232	6.5	+0.24	+3.8	−16 39.4	21 23.6	+ 4 6.1	−1.0271	0.5898	−0.0921	−37	−90
B. A. C. 5712	6.5	0.23	4.4	18 6.1	22 53.4	+ 5 32.5	+0.3014	0.5899	0.0891	+41	−18
29 Ophiuchi	6.4	0.22	4.6	18 44.8	23 44.7	+ 6 21.8	+0.8798	0.5900	0.0875	+71	+16
Piazzi xvi, 297	6.2	0.18	4.2	17 29.0	**16** 2 22.4	+ 8 53.5	−0.6236	0.5901	0.0822	−12	−82
Piazzi xvii, 43	6.0	0.11	4.4	17 39.4	7 7.4	−10 32.3	−0.8170	0.5903	0.0727	−24	−90
B. D.−18°, 4516	6.3	+0.09	+4.7	−18 21.4	9 2.4	− 8 41.7	−0.2410	0.5902	−0.0688	+ 8	−50
Mayer 722	6.3	−0.09	4.9	18 47.1	21 49.1	+ 3 35.8	−0.5185	0.5897	0.0424	−10	−71
B. A. C. 6081	6.4	0.12	5.4	20 19.9	23 27.9	+ 5 10.9	+0.9966	0.5895	0.0389	+70	+26
Lalande 33327	6.3	0.18	5.2	19 51.6	**17** 4 4.7	+ 9 37.1	+0.3574	0.5890	0.0292	+39	−15
15 Sagittarii	5.3	0.20	5.5	20 45.3	5 41.5	+11 10.2	+1.2319	0.5888	0.0258	+69	+52
16 Sagittarii	5.9	−0.20	+5.4	−20 24.9	5 41.9	+11 10.6	+0.8830	0.5888	−0.0258	+70	+17
Lalande 33540	6.1	0.20	4.8	18 41.4	5 50.9	+11 19.3	−0.8907	0.5888	0.0255	−33	−90
B. A. C. 6195	6.4	0.22	4.7	18 29.8	6 39.5	−11 54.0	−1.1093	0.5886	0.0238	−50	−90
B. A. C. 6201	6.4	0.22	4.8	18 39.3	7 10.0	−11 24.6	−0.9585	0.5885	0.0227	−39	−90
Y Sagittarii	Var.	0.24	4.8	18 54.0	8 15.4	−10 21.6	−0.7297	0.5884	0.0204	−24	−90
21 Sagittarii	5.0	−0.26	+5.4	−20 35.5	9 51.5	− 8 49.2	+0.9761	0.5881	−0.0170	+69	+24
Mayer 748	5.7	0.29	4.7	18 47.2	11 53.0	− 6 52.3	−0.9077	0.5878	0.0128	−36	−90
Mayer 750	5.0	0.30	4.6	18 28.0	12 24.1	− 6 22.4	−1.2445	0.5877	−0.0117	−66	−90
29 Sagittarii	5.3	0.40	5.1	20 25.8	19 54.2	+ 0 50.9	+0.7494	0.5861	+0.0040	+70	+ 8
ξ^1 Sagittarii	5.1	0.45	5.1	20 46.7	23 4.9	+ 3 54.4	+1.1328	0.5853	0.0106	+69	+39
Lalande 35497	6.1	−0.47	+4.5	−19 22.8	**18** 1 29.2	+ 6 13.3	−0.2797	0.5847	+0.0156	+ 1	−53
B.D.−19°, 5275	6.4	0.48	4.5	19 14.3	1 30.7	+ 6 14.7	−0.4272	0.5847	0.0156	− 7	−64
B. D.−18°, 5206	6.4	0.50	4.3	18 52.9	3 11.8	+ 7 52.1	−0.7664	0.5842	0.0191	−26	−90
Bradley 2402	5.4	0.50	4.4	19 26.2	3 39.7	+ 8 19.0	−0.1834	0.5840	0.0200	+ 7	−47
B. A. C. 6550	6.3	0.51	4.6	19 57.1	4 17.4	+ 8 55.2	+0.3618	0.5838	0.0213	+39	−15
d Sagittarii	5.1	−0.55	+4.2	−19 7.2	7 35.0	−11 54.5	−0.4182	0.5829	+0.0280	− 5	−63
B. A. C. 6616	6.4	0.58	4.2	19 24.6	9 15.1	−10 18.1	−0.0683	0.5824	0.0314	+14	−39
ρ^2 Sagittarii	6.0	0.57	3.9	18 28.9	9 21.5	−10 12.0	−1.0272	0.5823	0.0316	−43	−90
Mayer 814	6.1	0.65	3.8	19 3.6	15 30.4	− 4 16.6	−0.1965	0.5803	0.0438	+ 8	−48
Mayer 815	5.8	0.65	3.6	18 26.4	15 46.8	− 4 0.8	−0.8302	0.5802	0.0443	−28	−90
f Sagittarii	5.1	−0.71	+3.9	−19 59.2	19 43.0	− 0 13.3	+0.9700	0.5787	+0.0519	+70	+23
57 Sagittarii	6.0	0.74	3.5	19 17.0	22 12.7	+ 2 11.0	+0.3732	0.5778	0.0567	+43	−14
π Capricorni	5.1	0.90	2.3	18 31.2	**19** 13 24.5	− 7 9.9	+0.6520	0.5714	0.0843	+66	+ 2
ρ Capricorni	5.0	0.90	2.1	18 7.5	14 5.4	− 6 30.5	+0.2951	0.5712	0.0855	+40	−19
o Capricorni	5.6	0.91	2.2	18 53.6	14 31.9	− 6 4.9	+1.1413	0.5709	0.0862	+71	+38
Piazzi xx, 194	6.2	−0.92	+1.5	−16 50.9	17 2.1	− 3 40.0	−0.7856	0.5698	+0.0905	−20	−90
υ Capricorni	5.3	0.96	1.8	18 28.2	19 0.5	− 1 45.8	+1.1001	0.5689	0.0938	+72	+34
B. A. C. 7145	5.9	0.94	1.2	16 27.5	19 15.4	− 1 31.3	−0.9914	0.5688	0.0942	−34	−90
Mayer 889	5.7	1.01	+0.6	16 23.6	**20** 2 52.3	+ 5 49.7	−0.2976	0.5653	0.1065	+ 9	−54
29 Capricorni	5.5	1.07	−0.2	15 33.7	11 2.0	−10 17.4	−0.2570	0.5613	0.1187	+12	−51
42 Capricorni	5.1	−1.15	−1.5	−14 28.0	22 54.1	+ 1 10.8	+0.0865	0.5556	+0.1347	+33	−31
44 Capricorni	6.0	1.16	1.4	14 49.8	23 36.1	+ 1 51.4	+0.5667	0.5553	0.1356	+65	− 4
45 Capricorni	5.8	1.16	1.4	15 10.8	**21** 0 2.2	+ 2 16.5	+0.9991	0.5551	0.1361	+75	+24
B. A. C. 7599	6.1	1.16	2.0	13 9.7	2 42.0	+ 4 51.0	−0.7826	0.5538	0.1394	−15	−90
μ Capricorni	5.1	1.17	2.0	13 59.7	4 22.0	+ 6 27.7	+0.3388	0.5530	0.1414	+49	−17
e^2 Aquarii	5.4	−1.20	−3.0	−12 1.7	12 34.8	− 9 35.5	−0.5600	0.5491	+0.1506	0	−73
42 Aquarii	5.5	1.23	3.0	13 18.1	15 31.0	− 6 45.0	+1.2479	0.5478	0.1537	+77	+48
σ Aquarii	4.8	1.24	4.0	11 9.6	22 11.4	− 0 17.5	+0.0035	0.5448	0.1601	+32	−35
58 Aquarii	6.4	−1.24	−4.0	11 23.3	22 41.3	+ 0 11.5	+0.3283	0.5446	0.1605	+51	−18
SATURN	. .	. .	. .	− 9 49.1	**22** 6 40.0	+ 7 55.2	−0.0495	0.5365	+0.1654	+30	−38
				NEW	*MOON.*						

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MARCH.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° ′	d h m	h m				°	°
Piazzi i, 249	6.5	−1.12	−10.3	+ 7 16.9	**26** 12 3.8	+10 18.8	−0.2213	0.5222	+0.1750	+23	−47
64 Ceti	5.8	1.10	10.3	8 7.6	15 28.5	−10 22.5	−0.5629	0.5223	0.1730	+ 5	−70
ξ^1 Ceti	4.6	1.09	10.2	8 24.2	16 19.8	− 9 32.6	−0.7207	0.5224	0.1724	− 4	−81
25 Arietis	6.5	1.06	10.2	9 46.7	23 51.6	− 2 14.0	−0.9646	0.5231	0.1674	−20	−80
ξ^2 Ceti	4.3	1.06	10.5	8 2.2	**27** 0 15.8	− 1 50.4	+1.0331	0.5232	0.1671	+90	+27
B. F. 310	6.3	−1.06	−10.3	+ 9 8.6	1 0.0	− 1 7.5	−0.0707	0.5232	+0.1666	+32	−37
85 Ceti	6.3	1.02	10.2	10 20.3	7 42.3	+ 5 23.1	−0.2948	0.5240	0.1615	+19	−49
μ Ceti	4.3	1.01	10.4	9 42.9	8 58.5	+ 6 37.1	+0.6013	0.5242	0.1605	+78	+ 1
W. B. ii, 1033	5.8	0.95	9.9	12 49.4	20 3.3	− 6 37.7	−1.1201	0.5261	0.1509	−33	−77
B. D. +12°, 473	6.2	0.90	10.1	12 17.6	**28** 5 11.5	+ 2 14.2	+0.8057	0.5279	0.1420	+90	+15
f Tauri	4.3	−0.88	−10.1	+12 36.7	8 36.7	+ 5 33.2	+0.9319	0.5286	+0.1385	+90	+24
B. D. +14°, 657	5.9	0.75	9.6	14 54.5	**29** 3 10.7	− 0 26.4	+0.7590	0.5332	0.1170	+90	+15
48 Tauri	6.3	0.71	9.6	15 9.8	7 12.4	+ 3 28.0	+0.9375	0.5343	0.1119	+90	+27
γ Tauri	3.9	0.70	9.5	15 23.9	9 12.2	+ 5 24.1	+0.8976	0.5349	0.1093	+90	+25
δ^1 Tauri	3.9	0.68	8.9	17 19.2	10 43.8	+ 6 52.9	−1.0677	0.5353	0.1074	−30	−73
63 Tauri	5.7	−0.68	− 9.1	+16 33.3	10 59.0	+ 7 7.6	−0.1931	0.5354	+0.1070	+25	−37
δ^2 Tauri	4.9	0.68	8.9	17 13.5	11 18.5	+ 7 26.5	−0.8995	0.5355	0.1066	−17	−73
70 Tauri	6.4	0.68	9.4	15 43.4	12 5.5	+ 8 12.1	+0.8466	0.5357	0.1055	+90	+22
71 Tauri	4.6	0.67	9.5	15 24.2	12 27.3	+ 8 33.1	+1.2410	0.5358	0.1051	+90	+57
75 Tauri	5.2	0.66	9.2	16 8.8	13 29.1	+ 9 33.0	+0.5231	0.5361	0.1037	+71	+ 3
θ^1 Tauri	4.2	−0.66	− 9.4	+15 45.1	13 33.2	+ 9 37.0	+0.9690	0.5362	+0.1036	+90	+31
θ^2 Tauri	3.6	0.66	9.4	15 39.6	13 35.9	+ 9 39.6	+1.0747	0.5362	0.1035	+90	+39
Bradley 619	4.8	0.66	9.3	15 59.2	14 31.9	+10 33.9	+0.8080	0.5364	0.1023	+90	+20
85 Tauri	6.0	0.65	9.4	15 38.9	15 10.8	+11 11.6	+1.2503	0.5366	0.1014	+90	+58
B. D. +17°, 750	6.2	0.64	8.7	17 49.0	15 58.7	+11 58.0	−1.0718	0.5368	0.1003	−31	−71
B. A. C. 1406	6.5	−0.65	− 9.2	+16 7.4	16 3.1	−11 57.7	+0.8109	0.5369	+0.1002	+90	+20
α Tauri	1.1	0.64	9.2	16 19.1	17 10.3	−10 52.6	+0.7066	0.5371	0.0987	+86	+14
i Tauri	5.1	0.57	8.4	18 40.7	**30** 0 42.5	− 3 34.6	−1.2016	0.5394	0.0880	−45	−71
Bradley 686	5.7	0.55	8.9	17 0.3	3 40.2	− 0 42.4	+0.9041	0.5403	0.0837	+90	+28
m Tauri	5.0	0.49	8.4	18 31.0	8 30.2	+ 3 58.4	−0.3806	0.5417	0.0765	+14	−45
B. A. C. 1651	6.5	−0.44	− 8.0	+19 43.0	15 1.0	+10 16.8	−1.2380	0.5436	+0.0666	−52	−70
115 Tauri	5.3	0.42	8.6	17 52.8	18 2.2	−10 47.8	+0.9820	0.5446	0.0618	+90	+36
119 Tauri	4.9	0.39	8.3	18 31.3	20 26.2	− 8 28.4	+0.4172	0.5453	0.0580	+63	+ 2
120 Tauri	5.6	0.39	8.4	18 28.3	21 3.9	− 7 51.9	+0.5096	0.5455	0.0570	+71	+ 7
B. D. +19°, 1110	6.0	0.30	7.8	19 50.5	**31** 5 59.7	+ 0 46.5	−0.5529	0.5481	0.0424	+ 4	−55
χ^1 Orionis	4.5	−0.29	− 7.7	+20 15.4	6 56.3	+ 1 41.2	−0.9693	0.5484	+0.0409	−23	−70
χ^2 Orionis	5.8	0.29	7.8	19 43.8	7 12.2	+ 1 56.6	−0.3794	0.5485	0.0404	+14	−42
χ^3 Orionis	5.1	0.25	7.8	19 41.4	11 12.8	+ 5 49.3	−0.1874	0.5496	0.0336	+25	−29
χ^4 Orionis	4.7	0.24	7.6	20 8.3	11 25.3	+ 6 1.5	−0.6721	0.5497	0.0333	− 3	−65
68 Orionis	5.7	0.21	7.7	19 48.6	15 13.7	+ 9 42.3	−0.1965	0.5507	0.0268	+24	−29
B. D. +18°, 1129	6.2	−0.20	− 8.1	+18 42.2	15 57.9	+10 25.1	+1.0337	0.5509	+0.0256	+90	+44
71 Orionis	5.1	0.20	8.0	19 11.2	16 34.0	+11 0.0	+0.5196	0.5511	0.0245	+72	+11
15 Geminorum	6.5	0.13	7.3	20 50.7	22 33.3	− 7 12.6	−1.1760	0.5528	0.0141	−44	−69
16 Geminorum	6.2	0.13	7.4	20 33.1	22 38.4	− 7 7.7	−0.8536	0.5528	0.0140	−15	−69
ν Geminorum	4.0	−0.12	− 7.5	+20 16.2	23 7.0	− 6 40.0	−0.5404	0.5529	+0.0132	+ 5	−51
APRIL.											
ζ Geminorum	Var.	+0.05	− 7.1	+20 42.4	**1** 15 18.7	+ 8 59.3	−1.0288	0.5569	−0.0157	−28	−69
56 Geminorum	5.2	0.13	7.0	20 37.2	23 27.5	− 7 8.4	−1.1182	0.5587	0.0305	−37	−69
61 Geminorum	5.8	+0.16	− 7.1	+20 26.6	**2** 1 43.7	− 4 56.9	−1.0012	0.5592	−0.0346	−26	−70
g Geminorum	5.0	0.25	7.5	18 44.3	10 27.3	+ 3 28.8	+0.4621	0.5609	0.0504	+67	+ 5
B. A. C. 2605	6.2	0.28	7.2	19 33.8	13 4.1	+ 6 0.2	−0.5608	0.5614	0.0552	+ 4	−56
85 Geminorum	5.2	0.30	7.0	20 7.8	14 44.1	+ 7 36.8	−1.2601	0.5616	0.0582	−58	−70
B. F. 1128	6.1	0.34	7.3	19 6.4	18 50.7	+11 35.0	−0.4185	0.5623	0.0656	+12	−47
ζ Cancri	4.6	+0.38	− 7.7	+17 55.8	22 12.6	− 9 10.1	+0.6038	0.5629	−0.0716	+80	+11

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

APRIL.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		s	"	° '	d h m	h m				°	°
*d*¹ Cancri	5.7	+0.43	−7.3	+18 37.9	**3** 3 12.4	− 4 20.6	−0.5231	0.5636	−0.0805	+ 6	−55
*d*² Cancri	6.2	0.44	7.8	17 21.3	4 20.2	− 3 15.1	+0.7401	0.5637	0.0825	+90	+18
θ Cancri	5.5	0.47	7.4	18 24.6	6 53.7	− 0 46.9	−0.5954	0.5641	0.0870	+ 2	−62
δ Cancri	4.1	0.53	7.3	18 29.9	12 44.4	+ 4 51.6	−1.2230	0.5649	0.0972	−48	−72
B. A. C. 3029	6.5	0.58	7.4	17 35.2	17 31.4	+ 9 28.7	−0.7452	0.5654	0.1053	− 7	−72
*o*¹ Cancri	5.1	+0.59	−8.0	+15 40.9	18 22.6	+10 18.1	+1.1667	0.5655	−0.1067	+90	+47
*o*² Cancri	5.7	0.59	7.9	15 56.4	18 31.4	+10 26.6	+0.8786	0.5654	0.1070	+90	+25
π¹ Cancri	6.4	0.65	7.9	15 22.4	**4** 1 6.1	− 7 12.5	+0.7300	0.5662	0.1179	+80	+14
π² Cancri	5.6	0.67	7.9	15 19.8	2 23.1	− 5 58.2	+0.6221	0.5663	0.1200	+81	+ 7
B.D.+15°,2027	6.4	0.69	7.8	15 46.1	5 3.4	− 3 23.5	−0.1626	0.5666	0.1243	+26	−36
7 Leonis	6.2	+0.75	−7.9	+14 47.8	11 33.4	+ 2 52.9	+0.0070	0.5672	−0.1345	+36	−28
11 Leonis	6.5	0.76	7.9	14 46.2	12 30.4	+ 3 48.0	−0.0934	0.5673	0.1359	+30	−33
ψ Leonis	5.6	0.78	7.9	14 27.0	15 2.2	+ 6 14.5	−0.1097	0.5675	0.1398	+29	−35
ν Leonis	5.0	0.84	8.2	12 53.5	21 27.9	−11 33.4	+0.5711	0.5681	0.1492	+75	+ 2
a Leonis	1.4	0.87	8.2	12 25.5	**5** 1 58.0	− 7 12.7	+0.3645	0.5685	0.1554	+58	−11
34 Leonis	6.4	+0.89	−7.8	+13 49.0	3 23.0	− 5 50.6	−1.2881	0.5686	−0.1574	−55	−76
45 Leonis	5.8	0.95	8.5	10 14.4	10 28.6	+ 1 0.0	+1.2291	0.5692	0.1666	+90	+48
ρ Leonis	3.8	0.97	8.5	9 47.3	12 45.3	+ 3 11.9	+1.3056	0.5694	0.1694	+90	+60
l Leonis	5.2	1.02	8.0	11 2.4	19 59.1	+10 10.5	−1.2252	0.5701	0.1777	−43	−79
χ Leonis	4.6	1.07	8.4	7 50.5	**6** 2 56.2	− 7 7.2	+0.7571	0.5708	0.1850	+90	+ 9
Piazzi xi, 12	5.8	+1.10	−8.1	+ 8 34.4	6 52.0	− 3 19.8	−0.7157	0.5713	−0.1887	− 4	−81
σ Leonis	4.2	1.12	8.3	6 32.5	9 59.4	− 0 19.0	+0.7379	0.5716	0.1914	+83	+ 7
b Virginis	5.2	1.21	7.8	4 10.6	**7** 2 54.2	− 8 0.2	−0.2364	0.5741	0.2030	+23	−49
10 Virginis	6.2	1.24	7.8	+ 2 25.4	7 7.2	− 3 56.3	+0.6507	0.5748	0.2049	+82	0
γ Virginis (*mean*)	2.9	1.30	7.2	− 0 56.2	20 54.8	+ 9 21.5	+1.1241	0.5776	0.2086	+89	+32
65 Virginis	6.0	+1.36	−6.0	− 4 26.1	**8** 14 36.0	+ 2 24.1	+0.8887	0.5818	−0.2068	+86	+14
66 Virginis	5.7	1.36	5.9	4 40.5	15 6.9	+ 2 53.9	+1.0188	0.5819	0.2067	+85	+23
80 Virginis	5.6	1.36	5.5	4 55.1	19 44.3	+ 7 21.0	+0.3073	0.5831	0.2049	+53	−19
Piazzi xiii, 174	6.4	1.36	5.3	5 1.6	23 15.5	+10 44.5	−0.3046	0.5840	0.2031	+18	−54
n Virginis	6.5	1.36	5.1	6 22.2	**9** 1 5.3	−11 29.8	+0.6453	0.5846	0.2021	+79	0
Bradley 1820	6.1	+1.37	−4.8	− 7 35.9	3 52.2	− 8 49.2	+1.2922	0.5854	−0.2004	+82	+52
Lalande 26147	6.5	1.35	4.0	7 6.2	13 24.9	+ 0 22.2	−1.0745	0.5880	0.1931	−30	−90
ξ¹ Libræ	5.7	1.34	2.2	11 30.9	**10** 4 17.6	− 9 18.9	+0.4984	0.5922	0.1774	+63	− 8
ξ² Libræ	5.7	1.33	2.2	11 1.9	5 16.0	− 8 22.7	−0.1498	0.5924	0.1762	+23	−44
17 Libræ	6.4	1.33	2.1	10 46.7	5 51.7	− 7 48.3	−0.5032	0.5926	0.1754	+ 4	−69
18 Libræ	5.9	+1.32	−2.1	−10 46.0	6 8.2	− 7 32.5	−0.5624	0.5927	−0.1751	+ 1	−74
Mayer 616	5.9	1.28	1.0	12 2.1	16 13.0	+ 2 9.1	−1.0128	0.5952	0.1611	−29	−90
γ Libræ	4.1	1.28	−0.2	14 28.6	20 51.8	+ 6 37.0	+0.6605	0.5963	0.1539	+73	0
Bradley 1987	6.5	1.26	+0.2	14 44.5	**11** 0 1.2	+ 9 39.0	+0.4450	0.5969	0.1488	+56	−11
η Libræ	5.5	1.26	0.3	15 22.4	0 16.6	+ 9 53.8	+1.0300	0.5970	0.1484	+75	+26
W. B. xv, 839	6.2	+1.22	+0.3	−13 51.0	3 19.1	−11 10.8	−0.9175	0.5976	−0.1433	−24	−90
W. B. xv, 910	6.4	1.21	0.5	14 7.4	5 8.7	− 9 25.5	−0.9070	0.5979	0.1401	−24	−90
B.D.−14°,4314	6.2	1.21	0.6	14 33.3	5 15.8	− 9 18.6	−0.4978	0.5980	0.1398	+ 1	−69
48 Libræ	4.6	1.20	0.5	14 0.5	5 55.5	− 8 40.4	−1.1295	0.5981	0.1388	−41	−90
49 Libræ	5.4	1.20	1.0	16 15.4	6 46.4	− 7 51.6	+0.9752	0.5982	0.1373	+75	+22
φ Ophiuchi	4.4	+1.10	+2.1	−16 24.4	18 58.0	+ 3 51.3	−0.4117	0.5998	−0.1145	+ 3	−62
24 Scorpii	5.0	1.07	2.8	17 33.6	23 4.4	+ 7 48.0	+0.2796	0.6001	0.1063	+41	−20
Piazzi xvi, 232	6.5	1.00	2.9	16 39.4	**12** 4 47.5	−10 42.3	−1.1959	0.6003	0.0946	−53	−90
B. A. C. 5712	6.5	1.00	3.4	18 6.1	6 14.2	− 9 19.1	+0.1103	0.6004	0.0916	+30	−30
29 Ophiuchi	6.4	0.99	3.7	18 44.8	7 3.8	− 8 31.4	+0.6788	0.6004	0.0899	+68	+ 3
Piazzi xvi, 297	6.2	+0.96	+3.5	−17 29.0	9 36.2	− 6 5.0	−0.8034	0.6003	−0.0845	−22	−90
Piazzi xvii, 43	6.0	0.90	3.8	17 39.4	14 11.8	− 1 40.3	−0.9975	0.6001	0.0747	−37	−90
B. D.−18°,4516	6.3	0.88	4.1	18 21.5	16 3.1	+ 0 6.6	−0.4319	0.6000	0.0707	− 2	−64
Mayer 722	6.3	0.73	4.9	18 47.1	**13** 4 26.1	−11 59.7	−0.7140	0.5984	0.0435	−21	−81
B. A. C. 6081	6.4	0.71	5.4	20 19.9	6 2.0	−10 27.5	+0.7795	0.5981	0.0399	+70	+10
Lalande 33327	6.3	+0.65	+5.4	−19 51.5	10 31.0	− 6 9.1	+0.1470	0.5970	−0.0300	+26	−27

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

APRIL.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y'	x'	y'	N.	S.
		Δα	Δδ								
		s	"	° '	d h m	h m				°	°
15 Sagittarii	5.3	+0.63	+5.8	−20 45.3	**13** 12 5.1	− 4 38.6	+1.0095	0.5966	−0.0265	+69	+26
16 Sagittarii	5.9	0.63	5.7	20 24.9	12 5.5	− 4 38.2	+0.6650	0.5966	0.0265	+63	+ 2
Lalande 33540	6.1	0.62	5.1	18 41.4	12 14.3	− 4 29.8	−1.0856	0.5965	0.0262	−48	−90
B. A. C. 6201	6.4	0.61	5.1	18 39.3	13 31.2	− 3 15.9	−1.1532	0.5962	0.0233	−55	−90
Y Sagittarii	Var	0.59	5.2	18 54.0	14 34.8	− 2 14.8	−0.9279	0.5959	0.0210	−37	−90
21 Sagittarii	5.0	+0.58	+5.9	−20 35.4	16 8.5	− 0 44.7	+0.7561	0.5957	−0.0175	+69	+ 8
Mayer 748	5.7	0.55	5.3	18 47.2	18 6.9	+ 1 9.1	−1.1054	0.5949	0.0132	−51	−90
B. A. C. 6347	5.9	0.50	6.1	21 7.7	21 34.7	+ 4 28.8	+1.2424	0.5938	−0.0055	+70	+55
B.D. −21°,5131	6.3	0.46	6.2	21 5.7	**14** 0 9.9	+ 6 58.0	+1.2040	0.5929	+0.0001	+69	+47
29 Sagittarii	5.3	0.44	6.0	20 25.8	1 56.5	+ 8 40.5	+0.5303	0.5925	0.0040	+49	− 6
ξ¹ Sagittarii	5.1	+0.40	+6.2	−20 46.7	5 3.0	+11 39.8	+0.9091	0.5911	+0.0107	+69	+19
Lalande 35497	6.1	0.36	5.7	19 22.8	7 24.2	−10 4.3	−0.4887	0.5901	0.0157	−11	−69
B.D. −19°,5275	6.4	0.36	5.6	19 14.2	7 25.7	−10 2.9	−0.6347	0.5901	0.0158	−19	−84
B. D. −18°,5206	6.4	0.33	5.5	18 52.9	9 4.7	− 8 27.6	−0.9707	0.5894	0.0193	−40	−90
Bradley 2402	5.4	0.33	5.7	19 26.2	9 32.1	− 8 1.3	−0.3937	0.5892	0.0203	− 5	−61
B. A. C. 6550	6.3	+0.32	+5.9	−19 57.0	10 9.0	− 7 25.8	+0.1460	0.5890	+0.0216	+25	−27
d Sagittarii	5.1	0.27	5.6	19 7.1	13 22.8	− 4 19.3	−0.6267	0.5875	0.0283	−17	−83
B. A. C. 6616	6.4	0.25	5.7	19 24.5	15 1.0	− 2 44.8	−0.2802	0.5868	0.0317	+ 3	−53
ρ² Sagittarii	6.0	0.25	5.4	18 28.9	15 7.3	− 2 38.8	−1.2303	0.5868	0.0320	−62	−90
Mayer 814	6.1	0.16	5.5	19 3.6	21 10.0	+ 3 10.3	−0.4074	0.5838	0.0443	− 3	−62
Mayer 815	5.8	+0.16	+5.3	−18 26.3	21 26.2	+ 3 25.9	−1.0356	0.5837	+0.0440	−42	−90
f Sagittarii	5.1	0.10	5.8	19 59.2	**15** 1 18.9	+ 7 10.0	+0.7508	0.5818	0.0525	+70	+ 8
57 Sagittarii	6.0	+0.07	5.5	19 17.0	3 46.6	+ 9 32.3	+0.1591	0.5805	0.0574	+29	−27
σ Capricorni	5.5	−0.09	5.3	19 24.6	15 22.4	− 3 17.3	+1.0886	0.5741	0.0790	+71	+33
π Capricorni	5.1	0.13	4.8	18 31.1	18 49.1	+ 0 2.1	+0.4422	0.5722	0.0851	+50	−11
ρ Capricorni	5.0	−0.13	+4.6	−18 7.4	19 29.6	+ 0 41.1	+0.0874	0.5718	+0.0862	+28	−31
ο Capricorni	5.6	0.15	4.9	18 53.6	19 56.0	+ 1 6.6	+0.9297	0.5715	0.0870	+71	+20
Piazzi xx, 194	6.2	0.17	4.0	16 50.9	22 25.2	+ 3 30.5	−0.0871	0.5702	0.0913	−34	−90
τ' Capricorni	5.3	0.20	4.6	18 28.1	**16** 0 22.8	+ 5 23.9	+0.8917	0.5690	0.0946	+72	+17
B. A. C. 7145	5.9	0.20	3.9	16 27.5	0 37.7	+ 5 38.2	−1.1913	0.5689	0.0949	−52	−90
B.D. −18°,5783	6.4	−0.25	+4.4	−18 22.9	4 28.9	+ 9 21.3	+1.2045	0.5667	+0.1012	+72	+45
Mayer 889	5.7	0.29	3.5	16 23.5	8 12.8	−11 2.6	−0.4959	0.5645	0.1072	− 2	−69
21 Capricorni	6.5	0.32	4.0	17 53.8	9 37.4	− 9 40.9	+1.2307	0.5637	0.1093	+72	+50
θ Capricorni	4.1	0.34	3.7	17 36.3	11 54.3	− 7 28.7	+1.1881	0.5623	0.1128	+72	+42
29 Capricorni	5.5	0.38	2.8	15 33.7	16 21.9	− 3 10.2	−0.4498	0.5597	0.1193	+ 2	−65
42 Capricorni	5.1	−0.51	+1.8	−14 28.0	**17** 4 15.3	+ 8 19.3	−0.0961	0.5530	+0.1353	+23	−41
44 Capricorni	6.0	0.52	1.9	14 49.8	4 57.4	+ 9 0.0	+0.3846	0.5526	0.1362	+51	−14
45 Capricorni	5.8	0.52	2.0	15 10.8	5 23.6	+ 9 25.3	+0.8173	0.5524	0.1367	+75	+11
B. A. C. 7599	6.1	0.53	1.2	13 9.7	8 4.0	−11 59.6	−0.9612	0.5509	0.1399	−26	−90
μ Capricorni	5.1	0.55	1.4	13 59.7	9 44.5	−10 22.4	+0.1620	0.5500	0.1419	+30	−27
c² Aquarii	5.4	−0.62	+0.2	−12 1.6	18 0.2	− 2 22.7	−0.7280	0.5456	+0.1510	−10	−84
42 Aquarii	5.5	0.66	+0.4	13 18.0	20 57.7	+ 0 29.0	+1.0856	0.5441	0.1540	+77	+29
σ Aquarii	4.8	0.70	−0.7	11 9.6	**18** 3 41.3	+ 6 59.8	−0.1512	0.5408	0.1604	+23	−45
58 Aquarii	6.4	0.71	0.6	11 23.3	4 11.5	+ 7 29.1	+0.1747	0.5406	0.1608	+42	−26
70 Aquarii	6.1	0.78	1.2	11 3.1	12 27.8	− 8 30.1	+1.1759	0.5369	0.1677	+79	+38
SATURN				− 8 46.0	17 44.8	− 3 22.9	−0.3932	0.5308	+0.1701	+12	−60
ψ¹ Aquarii	5.4	−0.81	−2.5	8 12.1	20 46.6	− 0 26.6	−0.4811	0.5335	0.1736	+ 7	−67
χ Aquarii	5.3	0.86	2.9	8 14.4	**19** 2 40.4	+ 5 16.4	+0.5949	0.5313	0.1772	+73	− 3
B. A. C. 8129	6.3	0.85	3.5	6 25.3	4 37.6	+ 7 10.2	−1.0290	0.5306	0.1783	−26	−90
24 Piscium	6.1	0.94	5.1	3 40.7	21 9.1	− 0 47.9	−1.0090	0.5256	0.1854	−23	−90
27 Piscium	5.1	0.96	−5.2	− 4 4.7	**20** 0 8.2	+ 2 5.9	−0.0183	0.5249	+0.1863	+34	−37
29 Piscium	5.1	0.96	5.4	3 33.1	1 46.2	+ 3 41.0	−0.2889	0.5245	0.1867	+20	−53
4 Ceti	6.3	0.98	5.7	3 4.4	4 50.7	+ 6 40.1	−0.2368	0.5238	0.1875	+22	−50
5 Ceti	6.3	0.97	5.7	2 58.3	5 5.4	+ 6 54.3	−0.3019	0.5237	0.1875	+19	−54
B. A. C. 81	6.3	1.01	6.2	2 44.4	13 36.8	− 8 49.2	+1.0504	0.5222	0.1889	+87	+26
10 Ceti	6.4	1.00	−6.6	− 0 34.3	14 43.3	− 7 44.6	−1.1184	0.5221	+0.1890	−31	−90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

APRIL.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N.	S.
		$\Delta\alpha$	$\Delta\delta$								
		s	"	° '	d h m	h m				°	°
14 Ceti	5.4	−1.02	−6.8	− 1 1.4	**20** 19 24.6	− 3 11.4	+0.2636	0.5214	+0.1892	+51	−21
				NEW	*MOON.*						
B.D. +14°,657	5.9	−0.99	−9.7	+14 54.5	**25** 9 44.8	+ 7 55.2	+0.9378	0.5343	+0.1189	+90	+27
B.D. +16°,569	6.2	−0.98	−9.4	+17 2.0	12 7.3	+10 13.4	−1.1455	0.5349	+0.1159	−37	−73
48 Tauri	6.3	0.97	9.7	15 9.8	13 46.3	+11 49.4	+1.1231	0.5353	0.1138	+90	+42
γ Tauri	3.9	0.96	9.6	15 23.9	15 46.1	−10 14.5	+1.0863	0.5359	0.1112	+90	+39
δ^1 Tauri	3.9	0.96	9.3	17 19.2	17 17.7	− 8 45.8	−0.8815	0.5362	0.1091	−16	−73
63 Tauri	5.7	0.96	9.4	16 33.3	17 32.9	− 8 31.0	−0.0044	0.5364	0.1088	+36	−26
δ^2 Tauri	4.9	−0.96	−9.3	+17 13.4	17 52.4	− 8 12.2	−0.7121	0.5365	+0.1084	− 5	−73
δ^3 Tauri	4.3	0.96	9.2	17 42.6	18 33.3	− 7 32.5	−1.1793	0.5367	0.1075	−41	−72
70 Tauri	6.4	0.95	9.6	15 43.4	18 39.4	− 7 26.5	+1.0396	0.5367	0.1073	+90	+35
75 Tauri	5.2	0.95	9.5	16 8.8	20 2.9	− 6 5.6	+0.7174	0.5371	0.1054	+83	+14
θ^1 Tauri	4.2	0.95	9.6	15 45.1	20 7.0	− 6 1.7	+1.1644	0.5371	0.1054	+90	+47
θ^2 Tauri	3.6	−0.95	−9.6	+15 39.6	20 9.8	− 5 59.0	+1.2704	0.5371	+0.1053	+90	+62
Bradley 619	4.8	0.94	9.5	15 59.2	21 5.7	− 5 4.8	+1.0045	0.5373	0.1040	+90	+33
B.D.+17°,750	6.2	0.94	9.1	17 49.0	22 32.6	− 3 40.6	−0.8782	0.5377	0.1020	−15	−72
B. A. C. 1406	6.5	0.94	9.4	16 7.4	22 36.9	− 3 36.4	+1.0097	0.5377	0.1019	+90	+34
α Tauri	1.1	0.93	9.4	16 19.1	23 44.2	− 2 31.2	+0.9067	0.5381	0.1004	+90	+25
Mayer 177	6.1	−0.91	−8.9	+18 33.8	**26** 4 47.2	+ 2 22.3	−1.0971	0.5394	+0.0932	−33	−71
i Tauri	5.1	0.90	8.8	18 40.7	7 16.6	+ 4 47.0	−0.9970	0.5401	0.0896	−24	−71
Bradley 686	5.7	0.88	9.1	17 0.2	10 14.4	+ 7 39.3	+1.1194	0.5409	0.0852	+90	+45
m Tauri	5.0	0.84	8.7	18 31.0	15 4.9	−11 39.4	−0.1637	0.5421	0.0780	+27	−32
B. A. C. 1651	6.5	0.82	8.3	19 43.0	21 36.6	− 5 20.2	−1.0173	0.5438	0.0678	−27	−70
115 Tauri	5.3	−0.79	−8.6	+17 52.8	**27** 0 38.3	− 2 24.2	+1.2156	0.5445	+0.0630	+90	+58
119 Tauri	4.9	0.78	8.4	18 31.3	3 2.8	− 0 4.3	+0.6510	0.5451	0.0591	+86	+15
120 Tauri	5.6	0.77	8.4	18 28.3	3 40.7	+ 0 32.4	+0.7444	0.5452	0.0582	+90	+21
B.D.+19°, 1110	6.0	0.71	7.9	19 50.5	12 39.0	+ 9 13.4	−0.3145	0.5473	0.0434	+18	−38
χ^1 Orionis	4.5	0.71	7.8	20 15.4	13 35.9	+10 8.4	−0.7324	0.5475	0.0418	− 6	−70
χ^2 Orionis	5.8	−0.70	−7.9	+19 43.8	13 51.9	+10 23.9	−0.1390	0.5476	+0.0414	+28	−27
χ^3 Orionis	5.1	0.67	7.8	19 41.4	17 53.9	− 9 42.0	+0.0574	0.5484	0.0345	+39	−15
χ^4 Orionis	4.7	0.67	7.6	20 8.3	18 6.6	− 9 29.6	−0.4299	0.5484	0.0342	+11	−44
68 Orionis	5.7	0.64	7.6	19 48.6	21 56.6	− 5 47.1	+0.0516	0.5492	0.0277	+39	−15
71 Orionis	5.1	0.62	7.8	19 11.2	23 17.5	− 4 28.9	+0.7733	0.5495	0.0254	+90	+26
15 Geminorum	6.5	−0.58	−7.1	+20 50.7	**28** 5 20.0	+ 1 21.7	−0.9295	0.5506	+0.0149	−20	−69
16 Geminorum	6.2	0.58	7.2	20 33.1	5 25.0	+ 1 26.6	−0.6048	0.5506	0.0147	+ 1	−56
ν Geminorum	4.0	0.57	7.3	20 16.2	5 53.9	+ 1 54.5	−0.2891	0.5507	+0.0139	+19	−33
ζ Geminorum	Var.	0.42	6.6	20 42.4	22 17.0	− 6 14.8	−0.7736	0.5533	−0.0151	− 9	−69
56 Geminorum	5.2	0.34	6.3	20 37.2	**29** 6 33.1	+ 1 44.8	−0.8616	0.5543	0.0298	−15	−69
61 Geminorum	5.8	−0.32	−6.3	+20 26.6	8 51.5	+ 3 58.6	−0.7431	0.5545	−0.0339	− 7	−70
79 Geminorum	6.3	0.23	6.0	20 32.4	17 15.6	−11 54.2	−1.1921	0.5553	0.0489	−45	−69
g Geminorum	5.0	0.22	6.6	18 44.3	17 44.4	−11 26.4	+0.7364	0.5554	0.0497	+90	+21
B. A. C. 2605	6.2	0.19	6.2	19 33.9	20 24.3	− 8 51.8	−0.2971	0.5557	0.0545	+19	−37
85 Geminorum	5.2	0.18	6.0	20 7.9	22 6.3	− 7 13.3	−1.0041	0.5558	0.0574	−26	−70
B.D.+20°, 1976	6.3	−0.15	−5.9	+20 4.4	**30** 0 27.9	− 4 56.4	−1.0806	0.5559	−0.0616	−32	−70
B.F. 1128	6.1	0.12	6.2	19 6.4	2 18.0	− 3 10.0	−0.1533	0.5561	0.0648	+27	−30
ζ Cancri	4.6	0.08	6.5	17 55.8	5 44.2	+ 0 9.2	+0.8804	0.5563	0.0708	+90	+28
d^1 Cancri	5.7	0.03	6.0	18 38.0	10 50.8	+ 5 5.5	−0.2604	0.5565	0.0797	+21	−38
d^2 Cancri	6.2	−0.01	6.5	17 21.3	12 0.3	+ 6 12.7	+1.0177	0.5566	0.0816	+90	+37
θ Cancri	5.5	+0.01	−6.0	+18 24.6	14 37.4	+ 8 44.5	−0.3347	0.5567	−0.0861	+17	−43
δ Cancri	4.1	+0.08	−5.8	+18 29.9	20 36.9	− 9 28.1	−0.9722	0.5571	−0.0961	−22	−72

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MAY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N.	S.
		s	"	° '	d h m	h m				°	°
B. A. C. 3029	6.5	+0.14	−5.9	+17 35.3	1 1 31.2	− 4 43.8	−0.4907	0.5572	−0.1042	+ 8	−55
o^2 Cancri	5.7	0.16	6.4	15 56.4	2 32.9	− 3 44.1	+1.1539	0.5573	0.1059	+90	+46
π^1 Cancri	6.4	0.22	6.3	15 22.4	9 18.3	+ 2 47.5	+0.9995	0.5576	0.1167	+90	+32
π^2 Cancri	5.6	0.25	6.3	15 19.8	10 37.4	+ 4 4.0	+0.8894	0.5576	0.1188	+90	+24
B.D.+15°,2027	6.4	0.28	6.0	15 46.1	13 22.2	+ 6 43.2	+0.0925	0.5577	0.1230	+41	−21
7 Leonis	6.2	+0.36	−6.2	+14 47.9	20 3.4	−10 49.2	+0.2591	0.5580	−0.1331	+51	−14
11 Leonis	6.5	0.38	6.2	14 46.2	21 2.0	− 9 52.5	+0.1565	0.5580	0.1346	+45	−20
ψ Leonis	5.6	0.40	6.2	14 27.0	23 38.3	− 7 21.5	+0.1375	0.5582	0.1384	+44	−21
ν Leonis	5.0	0.48	6.4	12 53.5	2 6 15.4	− 0 58.0	+0.8211	0.5585	0.1477	+90	+16
α Leonis	1.4	0.53	6.4	12 25.5	10 53.6	+ 3 30.8	+0.6064	0.5588	0.1539	+79	+ 3
34 Leonis	6.4	+0.54	−5.9	+13 49.1	12 21.2	+ 4 55.4	−1.0701	0.5589	−0.1559	−29	−76
l Leonis	5.2	0.74	6.1	11 2.5	3 5 26.8	− 2 33.9	−1.0292	0.5606	0.1763	−25	−79
χ Leonis	4.6	0.82	6.7	7 50.6	12 35.9	+ 4 20.5	+0.9655	0.5615	0.1836	+90	+22
Piazzi xi, 12	5.8	0.86	6.4	8 34.4	16 38.3	+ 8 14.5	−0.5317	0.5622	0.1874	+ 7	−68
σ Leonis	4.2	0.90	6.8	6 32.6	19 50.8	+11 20.5	+0.9323	0.5627	0.1903	+90	+19
b Virginis	5.2	+1.08	−6.5	+ 4 10.6	4 13 10.7	+ 4 4.4	−0.0884	0.5665	−0.2025	+31	−40
10 Virginis	6.2	1.14	6.7	+ 2 25.4	17 29.3	+ 8 14.0	+0.7964	0.5676	0.2046	+90	+ 9
γ Virginis (*mean*)	2.9	1.26	6.4	− 0 56.1	5 7 32.2	− 2 12.9	+1.2369	0.5719	0.2091	+89	+43
65 Virginis	6.0	1.43	5.7	4 26.1	6 1 26.1	− 8 57.6	+0.9499	0.5786	0.2083	+86	+18
66 Virginis	5.7	1.44	5.6	4 40.5	1 57.2	− 8 27.6	+1.0788	0.5788	0.2082	+85	+28
80 Virginis	5.6	+1.46	−5.3	− 4 55.1	6 36.4	− 3 58.6	+0.3528	0.5807	−0.2067	+57	−17
Piazzi xiii, 174	6.4	1.48	5.0	5 1.6	10 8.5	− 0 34.2	−0.2691	0.5823	0.2052	+20	−52
n Virginis	6.5	1.51	5.0	6 22.2	11 58.7	+ 1 11.9	+0.6758	0.5830	0.2043	+82	+ 1
Lalande 26147	6.5	1.57	3.9	7 6.2	7 0 18.0	−10 56.5	−1.0751	0.5886	0.1960	−30	−90
ξ^1 Libræ	5.7	1.66	2.6	11 30.9	15 4.2	+ 3 15.9	+0.4521	0.5952	0.1810	+60	−11
ξ^2 Libræ	5.7	+1.65	−2.5	−11 1.9	16 1.9	+ 4 11.5	−0.1949	0.5956	−0.1798	+21	−47
17 Libræ	6.4	1.65	2.5	10 46.7	16 37.2	+ 4 45.2	−0.5477	0.5959	0.1791	+ 2	−73
18 Libræ	5.9	1.65	2.4	10 46.0	16 53.5	+ 5 1.0	−0.6072	0.5960	0.1787	− 1	−78
Mayer 616	5.9	1.67	1.3	12 2.1	8 2 49.6	− 9 26.1	−1.0788	0.6002	0.1651	−34	−90
γ Libræ	4.1	1.70	0.8	14 28.6	7 23.5	− 5 3.1	+0.5687	0.6020	0.1580	+66	− 4
Bradley 1987	6.5	+1.70	−0.4	−14 44.5	10 29.2	− 2 4.8	+0.3472	0.6031	−0.1529	+49	−17
η Libræ	5.5	1.71	0.4	15 22.4	10 44.3	− 1 50.2	+0.9261	0.6033	0.1525	+75	+18
W. B. xv, 839	6.2	1.69	−0.1	13 51.0	13 42.9	+ 1 1.3	−1.0096	0.6042	0.1474	−30	−90
W. B. xv, 910	6.4	1.69	+0.2	14 7.4	15 30.2	+ 2 44.2	−1.0034	0.6049	0.1442	−30	−90
B.D.−14°,4314	6.2	1.69	0.2	14 33.3	15 37.2	+ 2 51.0	−0.5986	0.6049	0.1440	− 4	−78
48 Libræ	4.6	+1.68	+0.2	−14 0.5	16 15.9	+ 3 28.1	−1.2252	0.6051	−0.1428	−52	−90
49 Libræ	5.4	1.69	0.4	16 15.4	17 5.6	+ 4 15.8	+0.8550	0.6053	0.1414	+74	+13
ϕ Ophiuchi	4.4	1.67	1.9	16 24.4	9 4 58.8	− 8 19.8	−0.5436	0.6085	0.1184	− 4	−73
24 Scorpii	5.0	1.66	2.4	17 33.6	8 58.3	− 4 30.0	+0.1302	0.6093	0.1101	+32	−28
B. A. C. 5712	6.5	1.63	3.3	18 6.1	15 55.3	+ 2 10.0	−0.0515	0.6102	0.0952	+20	−39
29 Ophiuchi	6.4	+1.63	+3.4	−18 44.8	16 43.3	+ 2 56.0	+0.5074	0.6103	−0.0934	+55	− 7
Piazzi xvi, 297	6.2	1.60	3.5	17 29.0	19 11.0	+ 5 17.8	−0.9585	0.6104	0.0879	−33	−90
Piazzi xvii, 43	6.0	1.57	4.0	17 39.4	23 37.7	+ 9 33.6	−1.1582	0.6105	0.0779	−50	−90
B. D. −18°,4516	6.3	1.56	4.3	18 21.4	10 1 25.4	+11 16.8	−0.6043	0.6105	0.0738	−12	−80
Mayer 722	6.3	1.46	5.5	18 47.1	13 23.1	− 1 14.8	−0.9028	0.6094	0.0459	−33	−90
B. A. C. 6081	6.4	+1.46	+5.9	−20 19.9	14 55.6	+ 0 14.0	+0.5643	0.6092	−0.0423	+55	− 4
Lalande 33327	6.3	1.41	6.2	19 51.5	19 15.1	+ 4 22.9	−0.0651	0.6082	0.0320	+14	−40
μ Sagittarii	4.0	1.42	6.6	21 4.9	20 12.1	+ 5 17.5	+1.1235	0.6080	0.0298	+69	+37
15 Sagittarii	5.3	1.41	6.5	20 45.3	20 45.9	+ 5 50.0	+0.7812	0.6078	0.0285	+69	+10
16 Sagittarii	5.9	1.40	6.4	20 24.9	20 46.3	+ 5 50.4	+0.4423	0.6078	0.0284	+44	−11
Y Sagittarii	Var.	+1.37	+6.2	−18 54.0	23 10.3	+ 8 8.5	−1.1286	0.6072	−0.0228	−52	−90
21 Sagittarii	5.0	1.36	6.8	20 35.4	11 0 40.6	+ 9 35.2	+0.5257	0.6067	0.0192	+50	− 6
B. A. C. 6347	5.9	1.30	7.3	21 7.7	5 55.1	− 9 22.9	+0.9968	0.6049	0.0069	+69	+25
B.D.−21°,5131	6.3	1.28	7.4	21 5.7	8 24.8	− 6 59.2	+0.9557	0.6040	−0.0011	+69	+22
29 Sagittarii	5.3	1.25	7.4	20 25.8	10 7.6	− 5 20.5	+0.2905	0.6033	+0.0029	+32	−19
ξ^1 Sagittarii	5.1	+1.22	+7.6	−20 46.6	13 7.5	− 2 27.8	+0.6595	0.6020	+0.0098	+61	+ 2

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MAY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N.	S.
		Δα	Δδ								
		s	"	° ′	d h m	h m				°	°
ξ^2 Sagittarii	3.7	+1.21	+7.8	-21 13.7	11 13 16.1	- 2 19.5	+1.1145	0.6020	+0.0101	+69	+36
Lalande 35497	6.1	1.18	7.3	19 22.8	15 23.7	- 0 17.1	-0.7185	0.6010	0.0150	-24	-90
B.D.-19°, 5275	6.4	1.18	7.3	19 14.2	15 25.1	- 0 15.7	-0.8622	0.6010	0.0151	-33	-90
B.D.-18°, 5206	6.4	1.15	7.3	18 52.9	17 0.6	+ 1 16.0	-1.1947	0.6002	0.0186	-59	-90
Bradley 2402	5.4	1.15	7.5	19 26.1	17 27.0	+ 1 41.4	-0.6275	0.6001	0.0196	-18	-84
π Sagittarii	3.0	+1.15	+8.0	-21 10.3	18 0.6	+ 2 13.7	+1.1338	0.5997	+0.0209	+69	+38
B. A. C. 6550	6.3	1.14	7.7	19 57.0	18 2.7	+ 2 15.7	-0.0971	0.5997	0.0210	+11	-42
d Sagittarii	5.1	1.10	7.5	19 7.1	21 9.8	+ 5 15.4	-0.8611	0.5981	0.0280	-31	-90
B. A. C. 6616	6.4	1.08	7.7	19 24.5	22 44.6	+ 6 46.5	-0.5218	0.5973	0.0315	-11	-72
Mayer 814	6.1	1.00	7.8	19 3.5	12 4 41.0	-11 31.0	-0.6531	0.5939	0.0444	-17	-87
Mayer 815	5.8	+1.00	+7.6	-18 26.3	4 56.6	-11 16.0	-1.2719	0.5938	+0.0449	-69	-90
f Sagittarii	5.1	0.95	8.2	19 59.1	8 41.5	- 7 39.8	+0.4835	0.5914	0.0528	+50	- 8
57 Sagittarii	6.0	0.92	8.0	19 16.9	11 4.4	- 5 22.4	-0.1011	0.5900	0.0577	+15	-42
σ Capricorni	5.5	0.76	8.3	19 24.6	22 18.4	+ 5 26.2	+0.8071	0.5826	0.0798	+71	+11
π Capricorni	5.1	0.72	8.0	18 31.1	13 1 38.9	+ 8 39.4	+0.1681	0.5803	0.0861	+31	-26
ρ Capricorni	5.0	+0.71	+7.8	-18 7.4	2 18.3	+ 9 17.4	-0.1822	0.5798	+0.0872	+13	-47
o Capricorni	5.6	0.70	8.1	18 53.5	2 43.9	+ 9 42.0	+0.6484	0.5796	0.0880	+66	+ 1
Piazzi xx, 194	6.2	0.67	7.4	16 50.8	5 8.8	-11 58.4	-1.2435	0.5779	0.0924	-59	-90
υ Capricorni	5.3	0.64	8.0	18 28.1	7 3.2	-10 8.1	+0.6091	0.5765	0.0957	+63	- 2
B.D.-18°, 5783	6.4	0.59	7.9	18 22.8	11 2.6	- 6 17.4	+0.9168	0.5737	0.1025	+72	+18
19 Capricorni	5.7	+0.56	+7.8	-18 16.6	13 24.5	- 4 0.6	+1.0582	0.5719	+0.1064	+72	+29
Mayer 889	5.7	0.54	7.2	16 23.5	14 40.8	- 2 47.0	-0.7631	0.5711	0.1085	-17	-90
21 Capricorni	6.5	0.52	7.7	17 53.7	16 3.2	- 1 27.6	+0.9506	0.5701	0.1107	+72	+20
θ Capricorni	4.1	0.49	7.5	17 36.3	18 16.7	+ 0 41.2	+0.8996	0.5685	0.1142	+72	+17
29 Capricorni	5.5	0.44	6.7	15 33.6	22 38.1	+ 4 53.4	-0.7195	0.5654	0.1208	-13	-83
42 Capricorni	5.1	+0.30	+5.9	-14 27.9	14 10 16.6	- 7 52.0	-0.3698	0.5572	+0.1368	+ 9	-59
44 Capricorni	6.0	0.29	6.1	14 49.7	10 58.0	- 7 12.1	+0.1062	0.5568	0.1377	+35	-30
45 Capricorni	5.8	0.28	6.2	15 10.7	11 23.7	- 6 47.2	+0.5347	0.5565	0.1382	+62	- 6
B. A. C. 7599	6.1	0.26	5.4	13 9.6	14 1.2	- 4 15.0	-1.2260	0.5547	0.1414	-50	-90
μ Capricorni	5.1	0.24	5.6	13 59.6	15 40.0	- 2 39.5	-0.1131	0.5536	0.1434	+23	-42
ι Aquarii	4.4	+0.15	+5.5	-14 19.5	21 48.5	+ 3 16.8	+1.1419	0.5496	+0.1504	+76	+35
ι^2 Aquarii	5.4	0.15	4.6	12 1.6	23 48.1	+ 5 12.5	-0.9926	0.5482	0.1525	-27	-90
42 Aquarii	5.5	0.10	4.9	13 17.9	15 2 43.1	+ 8 1.8	+0.8080	0.5464	0.1555	+77	+10
σ Aquarii	4.8	0.04	3.9	11 9.5	9 22.0	- 9 32.1	-0.4154	0.5424	0.1618	+ 9	-62
58 Aquarii	6.4	+0.03	4.0	11 23.2	9 51.8	- 9 3.2	-0.0914	0.5421	0.1623	+27	-41
70 Aquarii	6.1	-0.06	+3.4	-11 3.1	18 3.6	- 1 6.9	+0.9107	0.5376	+0.1691	+79	+16
h^1 Aquarii	5.4	0.12	2.0	8 12.0	16 2 19.1	+ 6 53.2	-0.7296	0.5334	0.1749	- 7	-85
SATURN				8 41.4	3 28.4	+ 8 0.4	-0.7434	0.5302	0.1746	- 7	-82
χ Aquarii	5.3	0.19	1.7	8 14.3	8 11.3	-11 25.4	+0.3482	0.5309	0.1785	+55	-17
B. A. C. 8129	6.3	0.19	+1.0	6 25.3	10 8.1	- 9 32.0	-1.2670	0.5298	0.1795	-49	-90
24 Piscium	6.1	-0.32	-0.9	- 3 40.7	17 2 38.6	+ 6 28.8	-1.2266	0.5238	+0.1864	-42	-90
27 Piscium	5.1	0.36	0.9	4 4.7	5 37.9	+ 9 22.8	-0.2334	0.5228	0.1872	+23	-50
29 Piscium	5.1	0.36	1.1	3 33.1	7 16.0	+10 58.1	-0.5010	0.5226	0.1877	+ 8	-68
4 Ceti	6.3	0.38	1.4	3 4.3	10 21.0	-10 2.3	-0.4440	0.5216	0.1884	+12	-64
5 Ceti	6.3	0.38	1.5	2 58.3	10 35.7	- 9 48.1	-0.5084	0.5215	0.1884	+ 8	-69
B. A. C. 81	6.3	-0.46	-2.0	- 2 44.4	19 8.8	- 1 29.9	+0.8568	0.5196	+0.1898	+87	+12
10 Ceti	6.4	0.44	2.7	0 34.2	20 15.6	- 0 25.0	-1.3077	0.5194	0.1899	-53	-90
14 Ceti	5.4	0.49	2.8	- 1 1.3	18 0 58.0	+ 4 9.4	+0.0818	0.5186	0.1902	+41	-31
26 Ceti	6.0	0.58	4.1	+ 0 51.7	15 58.2	- 5 16.3	+0.8608	0.5171	0.1893	+90	+12
33 Ceti	6.1	0.60	4.5	1 56.7	19 33.7	- 1 46.9	+0.3468	0.5170	0.1887	+57	-17
f Piscium	5.3	-0.62	-5.0	+ 3 7.1	23 24.9	+ 1 57.7	-0.2230	0.5169	+0.1878	+24	-49
Lalande 2632	6.5	0.65	5.2	3 2.8	19 4 15.6	+ 6 40.1	+0.7633	0.5170	0.1865	+90	+ 7
ν Piscium	4.6	0.68	6.0	5 0.6	11 59.6	- 9 49.1	+0.0243	0.5174	0.1830	+37	-34
Piazzi i, 249	6.5	0.74	6.9	7 17.0	20 0 24.7	+ 2 14.7	0.2437	0.5187	0.1782	+23	-49
64 Ceti	5.8	0.75	7.2	8 7.7	3 51.3	+ 5 35.3	0.5711	0.5192	0.1763	+ 5	-72
ξ^1 Ceti	4.6	-0.75	-7.2	+ 8 24.2	4 43.1	+ 6 25.7	0.7255	0.5194	+0.1758	- 4	-81

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MAY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N.	S.
		s	"	° '	d h m	h m				°	°
25 Arietis	6.5	-0.79	-7.7	+ 9 46.8	**20** 12 18.5	-10 12.1	-0.9365	0.5207	+0.1711	-17	-80
ξ^2 Ceti	4.3	0.80	7.5	8 2.2	12 42.9	- 9 48.3	+1.0685	0.5208	0.1708	+90	+30
B. F. 310	6.3	0.79	7.6	9 8.6	13 27.4	- 9 5.2	-0.0350	0.5209	0.1703	+34	-35
				NEW	*MOON.*						
B.D.+19°,1110	6.0	-0.85	-7.8	+19 50.5	**24** 18 31.7	- 7 6.6	-0.1462	0.5490	+0.0456	+27	-28
χ^1 Orionis	4.5	0.85	7.7	20 15.4	19 28.4	- 6 11.7	-0.5627	0.5491	0.0438	+ 4	-55
χ^2 Orionis	5.8	0.85	7.8	19 43.8	19 44.5	- 5 56.2	+0.0319	0.5492	0.0433	+38	-17
χ^3 Orionis	5.1	0.83	7.6	19 41.4	23 45.9	- 2 2.6	+0.2354	0.5500	0.0364	+51	- 6
χ^4 Orionis	4.7	0.83	7.5	20 8.3	23 58.5	- 1 50.4	-0.2523	0.5501	0.0361	+22	-33
68 Orionis	5.7	-0.81	-7.5	+19 48.6	**25** 3 47.9	+ 1 51.6	+0.2363	0.5508	+0.0295	+50	- 5
71 Orionis	5.1	0.80	7.6	19 11.2	5 8.7	+ 3 9.7	+0.9615	0.5511	0.0271	+90	+38
15 Geminorum	6.5	0.78	7.0	20 50.7	11 10.5	+ 8 59.6	-0.7351	0.5520	0.0166	- 7	-69
16 Geminorum	6.2	0.78	7.1	20 33.1	11 15.6	+ 9 4.7	-0.4096	0.5520	0.0164	+13	-41
ν Geminorum	4.0	0.78	7.1	20 16.2	11 44.5	+ 9 32.5	-0.0924	0.5520	+0.0155	+31	-21
ζ Geminorum	Var.	-0.68	-6.3	+20 42.4	**26** 4 7.3	+ 1 22.9	-0.5553	0.5540	-0.0137	+ 4	-51
56 Geminorum	5.2	0.63	5.9	20 37.2	12 24.4	+ 9 23.4	-0.6336	0.5544	0.0286	0	-60
61 Geminorum	5.8	0.61	5.9	20 26.6	14 43.2	+11 37.6	-0.5119	0.5545	0.0327	+ 7	-50
79 Geminorum	6.3	0.54	5.5	20 32.4	23 9.4	- 4 13.0	-0.9545	0.5547	0.0477	-22	-69
g Geminorum	5.0	0.53	5.9	18 44.3	23 38.4	- 3 45.0	+0.9854	0.5547	0.0486	+90	+38
B. A. C. 2605	6.2	-0.51	-5.6	+19 33.9	**27** 2 19.2	- 1 9.5	-0.0512	0.5547	-0.0533	+33	-23
85 Geminorum	5.2	0.50	5.3	20 7.9	4 1.8	+ 0 29.7	-0.7607	0.5547	0.0563	- 8	-70
B.D. +20°,1976	6.3	0.48	5.2	20 4.4	6 24.4	+ 2 47.6	-0.8355	0.5547	0.0605	-13	-70
B. F. 1128	6.1	0.46	5.4	19 6.4	8 15.3	+ 4 34.8	+0.0992	0.5546	0.0637	+42	-16
ζ Cancri	4.6	0.42	5.6	17 55.8	11 43.2	+ 7 55.7	+1.1432	0.5545	0.0697	+90	+49
d^1 Cancri	5.7	-0.38	-5.1	+18 38.0	16 52.7	-11 5.1	-0.0012	0.5544	-0.0785	+36	-23
θ Cancri	5.5	0.34	5.0	18 24.7	20 41.6	- 7 23.8	-0.0732	0.5542	0.0849	+32	-27
δ Cancri	4.0	0.28	4.7	18 29.9	**28** 2 45.5	- 1 32.0	-0.7124	0.5538	0.0950	- 5	-71
B. A. C. 3029	6.5	0.22	4.7	17 35.3	7 43.9	+ 3 16.4	-0.2239	0.5535	0.1030	+23	-38
π^1 Cancri	6.4	0.14	4.9	15 22.4	15 38.4	+10 55.2	+1.2848	0.5530	0.1154	+90	+64
π^2 Cancri	5.6	-0.12	-4.9	+15 19.8	16 58.9	-11 47.0	+1.1743	0.5529	-0.1174	+90	+47
B.D. +15°,2027	6.4	0.09	4.6	15 46.1	19 46.6	- 9 5.0	+0.3700	0.5528	0.1216	+59	- 7
B. A. C. 3209	6.3	0.08	4.1	16 59.4	21 45.5	- 7 9.9	-1.1772	0.5526	0.1245	-40	-73
7 Leonis	6.2	-0.01	4.6	14 47.9	**29** 2 35.6	- 2 29.4	+0.5404	0.5523	0.1316	+73	+ 1
11 Leonis	6.5	0.00	4.6	14 46.3	3 35.5	- 1 31.5	+0.4369	0.5523	0.1330	+64	- 5
ψ Leonis	5.6	+0.03	-4.5	+14 27.0	6 15.1	+ 1 2.8	+0.4181	0.5521	-0.1368	+63	- 6
ν Leonis	5.0	0.12	4.7	12 53.5	13 1.3	+ 7 35.5	+1.1105	0.5518	0.1460	+90	+37
α Leonis	1.4	0.17	4.6	12 25.5	17 46.2	-11 49.0	+0.8930	0.5516	0.1521	+90	+20
34 Leonis	6.4	0.19	4.0	13 49.1	19 16.1	-10 22.0	-0.8058	0.5517	0.1540	-10	-76
l Leonis	5.2	0.40	4.1	11 2.5	**30** 12 50.3	+ 6 37.3	-0.7725	0.5517	0.1741	- 7	-79
χ Leonis	4.6	+0.50	-4.8	+ 7 50.6	20 12.6	-10 15.1	+1.2466	0.5521	-0.1813	+90	+47
Piazzi xi, 12	5.8	0.56	4.4	8 34.4	**31** 0 22.7	- 6 13.3	-0.2768	0.5526	0.1851	+21	-50
σ Leonis	4.2	0.60	4.8	6 32.6	3 41.5	- 3 1.1	+1.2068	0.5529	0.1879	+90	+41
h Virginis	5.2	0.83	4.5	4 10.7	21 36.5	- 9 42.0	+0.1489	0.5560	0.2001	+45	-27

JUNE.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N.	S.
10 Virginis	6.2	+0.90	-4.9	+ 2 25.5	**1** 2 4.0	- 5 23.5	+1.0411	0.5570	-0.2023	+90	+25
65 Virginis	6.0	1.32	4.6	- 4 26.0	**2** 11 4.6	+ 2 28.9	+1.1324	0.5688	0.2069	+86	+32
66 Virginis	5.7	1.33	4.6	4 40.4	11 36.6	+ 2 59.8	+1.2618	0.5692	0.2068	+85	+46
80 Virginis	5.6	+1.38	-4.0	- 4 55.1	16 24.3	+ 7 37.3	+0.5152	0.5714	-0.2056	+68	- 8
Piazzi xiii, 174	6.4	1.42	3.8	5 1.6	20 2.5	+11 7.8	-0.1229	0.5731	0.2042	+28	-43
n Virginis	6.5	1.45	4.0	6 22.2	21 55.7	-11 3.1	+0.8289	0.5741	0.2034	+84	+10
Lalande 26147	6.5	1.58	2.9	7 6.1	**3** 10 34.0	+ 1 7.7	-0.9717	0.5809	0.1959	-22	-90
ξ^1 Libræ	5.7	1.76	2.2	11 30.9	**4** 1 38.3	- 8 21.8	+0.5302	0.5895	0.1818	+66	- 7
ξ^2 Libræ	5.7	+1.76	-2.0	-11 1.9	2 37.0	- 7 25.4	-0.1238	0.5900	-0.1807	+25	-43

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JUNE.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y'	x'	y'	N.	S.
		Δα	Δδ								
		s	"	° ′	d h m	h m				°	°
17 Libræ	6.4	+1.76	− 1.8	−10 46.7	4 3 12.8	− 6 51.0	−0.4806	0.5904	−0.1800	+ 6	−67
18 Libræ	5.9	1.78	1.8	10 46.0	3 29.5	− 6 34.8	−0.5413	0.5906	0.1797	+ 2	−72
Mayer 616	5.9	1.84	0.8	12 2.1	13 33.8	+ 3 6.2	−1.0404	0.5963	0.1666	−31	−90
γ Libræ	4.1	1.91	0.6	14 28.6	18 10.5	+ 7 32.1	+0.6019	0.5988	0.1598	+68	− 3
Bradley 1987	6.5	1.93	0.2	14 44.5	21 17.8	+10 32.0	+0.3711	0.6005	0.1549	+51	−16
η Libræ	5.5	+1.94	− 0.3	−15 22.4	21 33.0	+10 46.6	+0.9509	0.6006	−0.1544	+75	+20
W. B. xv, 839	6.2	1.93	+ 0.3	13 51.0	5 0 32.8	−10 20.6	−0.9975	0.6022	0.1495	−29	−90
W. B. xv, 910	6.4	1.94	0.5	14 7.4	2 20.6	− 8 37.1	−0.9957	0.6030	0.1464	−29	−90
B.D.−14°,4314	6.2	1.95	0.5	14 33.3	2 27.6	− 8 30.4	−0.5905	0.6031	0.1462	− 4	−78
48 Libræ	4.6	1.94	0.6	14 0.5	3 6.6	− 7 53.0	−1.2199	0.6034	0.1451	−50	−90
49 Libræ	5.4	+1.96	+ 0.3	−16 15.4	3 56.5	− 7 5.1	+0.8617	0.6038	−0.1436	+74	+14
φ Ophiuchi	4.4	2.02	2.1	16 24.4	15 50.4	+ 4 20.1	−0.5685	0.6090	0.1211	− 5	−76
24 Scorpii	5.0	2.04	2.6	17 33.6	19 49.1	+ 8 9.1	+0.0942	0.6105	0.1129	+30	−31
B. A. C. 5700	6.1	2.08	3.4	19 23.4	6 1 41.6	−10 12.9	+1.2610	0.6124	0.1003	+71	+55
B. A. C. 5712	6.5	2.06	3.5	18 6.1	2 43.7	− 9 13.4	−0.1044	0.6126	0.0980	+18	−42
29 Ophiuchi	6.4	+2.06	+ 3.6	−18 44.8	3 31.3	− 8 27.7	+0.4506	0.6129	−0.0963	+51	−11
Piazzi xvi, 297	6.2	2.05	3.9	17 29.0	5 57.7	− 6 7.3	−1.0157	0.6135	0.0909	−37	−90
Piazzi xvii, 43	6.0	2.04	4.5	17 39.4	10 21.6	− 1 54.4	−1.2242	0.6143	0.0808	−58	−90
B. D.−18°,4516	6.3	2.05	4.8	18 21.4	12 8.1	− 0 12.2	−0.6771	0.6146	0.0767	−16	−90
Mayer 722	6.3	2.02	6.2	18 47.0	23 55.0	+11 5.3	−0.9995	0.6153	0.0486	−39	−90
B. A. C. 6081	6.4	+2.04	+ 6.5	−20 19.9	7 1 25.9	−11 27.6	+0.4533	0.6153	−0.0449	+46	−10
Lalande 33327	6.3	2.01	7.0	19 51.5	5 40.4	− 7 23.7	−0.1807	0.6150	0.0346	+ 8	−47
μ Sagittarii	4.0	2.03	7.2	21 4.9	6 36.2	− 6 30.2	+0.9956	0.6148	0.0323	+69	+25
15 Sagittarii	5.3	2.02	7.3	20 45.3	7 9.4	− 5 58.3	+0.6551	0.6148	0.0309	+62	+ 1
16 Sagittarii	5.9	2.02	7.2	20 24.9	7 9.8	− 5 58.0	+0.3191	0.6148	0.0309	+36	−18
Y Sagittarii	Var	+1.98	+ 7.3	−18 54.0	9 30.8	− 3 42.8	−1.2429	0.6144	−0.0251	−65	−90
21 Sagittarii	5.0	2.00	7.7	20 35.4	10 59.1	− 2 18.2	+0.3932	0.6141	0.0215	+40	−14
Bradley 2332	5.7	1.98	8.3	21 28.4	15 43.5	+ 2 14.5	+1.1948	0.6130	0.0099	+69	+46
B. A. C. 6347	5.9	1.97	8.3	21 7.7	16 6.4	+ 2 36.4	+0.8484	0.6129	0.0090	+69	+14
B.D.−21°,5131	6.3	1.95	8.6	21 5.7	18 32.5	+ 4 56.5	+0.8023	0.6123	−0.0031	+69	+11
29 Sagittarii	5.3	+1.93	+ 8.6	−20 25.8	20 12.7	+ 6 32.6	+0.1405	0.6117	+0.0010	+23	−28
33 Sagittarii	5.8	1.93	9.0	21 28.5	21 50.8	+ 8 6.7	+1.1821	0.6112	0.0050	+69	+44
ξ^1 Sagittarii	5.1	1.91	9.0	20 46.6	23 8.0	+ 9 20.7	+0.4996	0.6107	0.0081	+47	− 8
ξ^2 Sagittarii	3.7	1.92	9.1	21 13.7	23 16.4	+ 9 28.7	+0.9492	0.6106	0.0084	+69	−21
Lalande 35497	6.1	1.88	9.0	19 22.8	8 1 20.6	+11 27.9	−0.8674	0.6098	0.0134	−33	−90
B.D.−19°, 5275	6.4	+1.88	+ 9.0	−19 14.2	1 22.0	+11 29.3	−1.0095	0.6098	+0.0134	−43	−90
Bradley 2402	5.4	1.86	9.2	19 26.1	3 20.6	−10 37.1	−0.7811	0.6091	0.0181	−27	−90
π Sagittarii	3.0	1.88	9.5	21 10.2	3 53.3	−10 5.6	+0.9587	0.6088	0.0194	+69	+22
B. A. C. 6550	6.3	1.86	9.3	19 57.0	3 55.2	−10 3.8	−0.2580	0.6088	0.0195	+ 2	−52
d Sagittarii	5.1	1.83	9.4	19 7.1	6 57.1	− 7 9.3	−1 0185	0.6074	0.0267	−43	−90
B. A. C. 6616	6.4	+1.82	+ 9.6	−19 24.5	8 29.2	− 5 40.8	−0.6860	0.6067	+0.0303	−20	−87
Mayer 814	6.1	1.76	10.0	19 3.5	14 15.2	− 0 8.8	−0.8258	0.6037	0.0435	−28	−90
f Sagittarii	5.1	1.72	10.4	19 59.1	18 8.5	+ 3 35.3	+0.2895	0.6015	0.0522	+36	−20
57 Sagittarii	6.0	1.70	10.4	19 16.9	20 27.0	+ 5 48.3	−0.2914	0.6001	0.0573	+ 4	−54
σ Capricorni	5.5	1.58	11.1	19 24.6	9 7 19.8	− 7 44.4	+0.5869	0.5928	0.0800	+60	− 3
π Capricorni	5.1	+1.54	+11.0	−18 31.0	10 33.8	− 4 37.9	−0.0480	0.5905	+0.0864	+20	−39
ρ Capricorni	5.0	1.53	10.9	18 7.3	11 12.0	− 4 1.1	−0.3942	0.5901	0.0876	+ 1	−62
ο Capricorni	5.6	1.53	11.1	18 53.5	11 36.7	− 3 37.3	+0.4241	0.5898	0.0884	+49	−12
υ Capricorni	5.3	1.48	11.2	18 28.0	15 47.7	+ 0 24.2	+0.3795	0.5867	0.0963	+45	−15
B.D. −18°,5783	6.4	1.43	11.2	18 22.8	19 39.3	+ 4 7.1	+0.6777	0.5837	0.1033	+69	+ 2
19 Capricorni	5.7	+1.40	+11.3	−18 16.6	21 56.6	+ 6 19.3	+0.8143	0.5820	+0.1074	+72	+11
Mayer 889	5.7	1.38	10.8	16 23.4	23 10.4	+ 7 30.4	−0.9828	0.5811	0.1095	−32	90
21 Capricorni	6.5	1.37	11.2	17 53.7	10 0 30.2	+ 8 47.3	+0.7049	0.5800	0.1117	+72	+ 4
θ Capricorni	4.1	1.34	11.2	17 36.2	2 39.4	+10 51.7	+0.6522	0.5783	0.1153	+68	+ 1
B. D. −17°,6216	6.1	1.29	11.3	17 43.9	6 34.6	− 9 21.6	+1.2499	0.5752	0.1216	+72	+51
29 Capricorni	5.5	+1.29	+10.7	−15 33.6	6 52.4	− 9 4.5	−0.9488	0.5750	+0.1221	−28	−90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JUNE.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x′*	*y′*	N.	S.
		Δα	Δδ								
		s	"	° ′	d h m	h m				°	°
ι Capricorni	4.3	+1.26	+11.2	-17 13.9	**10** 9 39.6	- 6 23.2	+1.1208	0.5728	+0.1264	+73	+34
42 Capricorni	5.1	1.15	10.2	14 27.8	18 9.2	+ 1 48.3	-0.6150	0.5661	0.1385	- 5	-80
44 Capricorni	6.0	1.14	10.5	14 49.6	18 49.2	+ 2 26.9	-0.1461	0.5656	0.1394	+21	-45
45 Capricorni	5.8	1.14	10.6	15 10.7	19 14.2	+ 2 51.1	+0.2761	0.5653	0.1399	+45	-21
μ Capricorni	5.1	1.09	10.2	13 59.5	23 22.8	+ 6 51.0	-0.3660	0.5621	0.1452	+10	-59
ι Aquarii	4.4	+1.01	+10.1	-14 19.4	**11** 5 20.6	-11 23.4	+0.8682	0.5576	+0.1523	+76	+14
e^2 Aquarii	5.4	1.00	9.4	12 1.5	7 16.8	- 9 31.1	-1.2392	0.5561	0.1545	-50	-90
42 Aquarii	5.5	0.96	9.7	13 17.9	10 7.0	- 6 46.6	+0.5362	0.5540	0.1575	+64	- 6
45 Aquarii	6.1	0.94	9.9	13 46.4	11 8.0	- 5 47.7	+1.1961	0.5533	0.1585	+76	+40
σ Aquarii	4.8	0.89	8.8	11 9.4	16 35.2	- 0 31.3	-0.6743	0.5494	0.1639	- 5	-87
58 Aquarii	6.4	+0.88	+ 8.9	-11 23.1	17 4.2	- 0 3.2	-0.3546	0.5491	+0.1643	+13	-58
70 Aquarii	6.1	0.79	8.5	11 3.0	**12** 1 3.8	+ 7 40.9	+0.6333	0.5437	0.1711	+74	- 1
h^1 Aquarii	5.4	0.71	7.2	8 12.0	9 8.1	- 8 30.2	-0.9889	0.5388	0.1769	-23	-90
SATURN				7 38.3	12 31.0	- 5 13.7	-0.9876	0.5359	0.1788	-23	-90
χ Aquarii	5.3	0.64	7.0	8 14.2	14 53.0	- 2 56.1	+0.0774	0.5354	0.1804	+38	-32
27 Piscium	5.1	+0.44	+ 4.4	- 4 4.6	**13** 11 58.2	- 6 29.3	-0.4912	0.5255	+0.1890	+ 9	-68
29 Piscium	5.1	0.43	4.2	3 33.0	13 15.1	- 4 55.3	-0.7556	0.5249	0.1894	- 6	-80
4 Ceti	6.3	0.40	3.9	3 4.2	16 37.7	- 1 58.1	-0.6973	0.5238	0.1901	- 2	-88
5 Ceti	6.3	0.40	3.8	2 58.2	16 52.2	- 1 44.0	-0.7612	0.5237	0.1901	- 6	-79
B. A. C. 81	6.3	0.31	3.3	2 44.3	**14** 1 19.8	+ 6 28.6	+0.6009	0.5210	0.1913	+77	- 3
14 Ceti	5.4	+0.27	+ 2.4	- 1 1.3	7 5.9	-11 55.3	-0.1636	0.5195	+0.1916	+27	-45
26 Ceti	6.0	0.14	0.9	+ 0 51.8	22 0.5	+ 2 33.4	+0.6280	0.5169	0.1905	+80	- 2
33 Ceti	6.1	0.11	+ 0.4	1 56.7	**15** 1 35.2	+ 6 2.1	+0.1212	0.5166	0.1898	+43	-29
f Piscium	5.3	0.09	- 0.2	3 7.2	5 25.7	+ 9 45.9	-0.4412	0.5163	0.1890	+12	-62
Lalande 2632	6.5	+0.04	0.5	3 2.9	10 15.6	- 9 32.4	+0.5480	0.5161	0.1876	+72	- 6
ν Piscium	4.6	-0.01	- 1.5	+ 5 0.7	17 59.1	- 2 2.1	-0.1770	0.5161	+0.1850	+26	-46
Piazzi i, 249	6.5	0.10	2.8	7 17.0	**16** 6 24.5	+10 1.9	-0.4245	0.5171	0.1793	+13	-61
64 Ceti	5.8	0.12	3.3	8 7.7	9 51.3	-10 37.3	-0.7453	0.5175	0.1774	- 5	-80
ξ^1 Ceti	4.6	0.12	3.3	8 24.3	10 43.2	- 9 46.8	-0.8979	0.5176	0.1769	-15	-82
25 Arietis	6.5	0.18	4.2	9 46.8	18 19.4	- 2 23.8	-1.0954	0.5189	0.1722	-29	-80
ξ^2 Ceti	4.3	-0.19	- 3.6	+ 8 2.3	18 43.8	- 2 0.1	+0.9065	0.5189	+0.1719	+90	+18
B. F. 310	6.3	0.19	3.9	9 8.7	19 28.4	- 1 16.8	-0.1936	0.5191	0.1714	+25	-45
85 Ceti	6.3	0.23	4.5	10 20.4	**17** 2 14.2	+ 5 17.4	-0.3761	0.5205	0.1666	+16	-55
μ Ceti	4.3	0.24	4.4	9 43.0	3 31.0	+ 6 31.9	+0.5288	0.5208	0.1656	+71	- 4
W. B. ii, 1033	5.8	0.31	5.6	12 49.4	14 40.3	- 6 38.3	-1.1252	0.5237	0.1564	-33	-77
B. D. +12°, 473	6.2	-0.37	- 5.8	+12 17.7	23 50.9	+ 2 16.0	+0.8586	0.5264	+0.1477	+90	+18
f Tauri	4.3	0.39	5.9	12 36.8	**18** 3 16.8	+ 5 35.7	+1.0058	0.5275	0.1443	+90	+28
Mayer 121	6.4	0.40	6.5	15 7.2	6 46.4	+ 8 59.1	-1.2833	0.5287	0.1405	-55	-75
B. D +14°, 657	5.9	0.49	6.8	14 54.6	21 51.8	- 0 22.9	+0.9429	0.5339	0.1231	+90	+26
B. D +16°, 569	6.2	0.50	7.2	17 2.0	**19** 0 14.2	+ 1 55.1	-1.1282	0.5348	0.1201	-35	-73
48 Tauri	6.3	-0.50	- 6.9	+15 9.8	1 53.1	+ 3 31.0	+1.1450	0.5354	+0.1180	+90	+43
γ Tauri	3.9	0.51	7.0	15 23.9	3 52.8	+ 5 27.0	+1.1163	0.5360	0.1154	+90	+41
δ^1 Tauri	3.9	0.52	7.3	17 19.2	5 24.2	+ 6 55.6	-0.8431	0.5367	0.1134	-13	-73
63 Tauri	5.7	0.52	7.2	16 33.4	5 39.4	+ 7 10.3	+0.0343	0.5367	+0.1130	+38	-25
				NEW	*MOON.*						
B. A. C. 2605	6.2	-0.58	- 5.2	+19 33.9	**23** 7 55.0	+ 6 13.6	+0.0791	0.5577	-0.0521	+41	-15
85 Geminorum	5.2	0.58	5.0	20 7.9	9 36.9	+ 7 52.1	-0.6274	0.5577	0.0551	0	-61
B. D.+20°,1976	6.3	0.57	4.9	20 4 4	11 58.6	+10 9.1	-0.6986	0.5576	0.0594	- 4	-68
B. F. 1128	6.1	0.55	4.9	19 6.4	13 48.8	+11 55.6	+0.2380	0.5575	0.0626	+51	- 8
d^1 Cancri	5.7	-0.51	- 4.6	+18 38.0	22 23.2	- 3 47.3	+0.1494	0.5570	-0.0775	+45	-14
θ Cancri	5.5	0.48	4.4	18 24.7	**24** 2 11.0	- 0 7.0	+0.0824	0.5566	0.0840	+41	-19
δ Cancri	4.1	0.44	4.1	18 29.9	8 13.3	+ 5 43.1	-0.5498	0.5560	0.0941	+ 5	-59
B. A. C. 3029	6.5	0.40	3.9	17 35.3	13 10.8	+10 30.7	-0.0551	0.5555	0.1022	+33	-28
B. D.+15°,2027	6.4	0.30	3.6	15 46.2	**25** 1 12.6	- 1 51.6	+0.5536	0.5538	0.1209	+74	+ 3
B. A. C. 3209	6.3	-0.29	- 3.2	+16 59.4	3 11.5	+ 0 3.4	-0.9963	0.5535	-0.1238	-23	-73

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JUNE.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x'	y'	N.	S.
		Δα	Δδ								
		s	"	° '	d h m	h m				°	°
7 Leonis	6.2	-0.24	- 3.5	+14 47.9	**25** 8 2.0	+ 4 44.3	+0.7315	0.5528	-0.1308	+80	+13
11 Leonis	6.5	0.23	3.5	14 46.3	9 2.0	+ 5 42.3	+0.6286	0.5526	0.1322	+82	+ 6
ψ Leonis	5.6	0.20	3.4	14 27.1	11 42.0	+ 8 17.0	+0.6123	0.5523	0.1360	+80	+ 5
ν Leonis	5.0	0.13	3.4	12 53.5	18 29.8	- 9 8.7	+1.3141	0.5513	0.1451	+90	+68
α Leonis	1.4	0.09	3.2	12 25.6	23 16.3	- 4 31.6	+1.0995	0.5506	0.1512	+90	+36
34 Leonis	6.4	-0.08	- 2.8	+13 49.1	**26** 0 46.8	- 3 4.1	-0.6077	0.5505	-0.1531	+ 3	-69
l Leonis	5.2	+0.12	2.5	11 2.5	18 31.6	- 9 54.1	-0.5669	0.5487	0.1728	+ 5	-69
Piazzi xi, 12	5.8	0.26	2.6	8 34.5	**27** 6 14.5	+ 1 25.9	-0.0643	0.5482	0.1834	+32	-37
ν Virginis	4.2	0.44	2.2	7 3.3	21 16.8	- 8 1.1	-1.3197	0.5486	0.1942	-56	-83
b Virginis	5.2	0.54	2.6	4 10.7	**28** 3 55.0	- 1 36.0	+0.3647	0.5492	0.1978	+58	-16
10 Virginis	6.2	+0.61	- 3.0	+ 2 25.5	8 29.3	+ 2 49.3	+1.2668	0.5498	-0.1999	+90	+47
c Virginis	5.1	0.65	2.1	+ 3 50.1	13 30.0	+ 7 40.1	-1.1955	0.5506	0.2019	-38	-86
65 Virginis	6.0	1.09	2.8	- 4 26.0	**29** 18 30.3	+11 42.3	+1.3385	0.5589	0.2042	+86	+60
80 Virginis	5.6	1.16	2.4	4 55.1	**30** 0 0.8	- 6 58.4	+0.7057	0.5611	0.2028	+85	+ 2
Piazzi xiii, 174	6.4	1.21	2.2	5 1.6	3 46.6	- 3 20.4	+0.0532	0.5627	0.2016	+37	-33
n Virginis	6.5	+1.24	- 2.5	- 6 22.2	5 43.9	- 1 27.2	+1.0177	0.5636	-0.2008	+84	+23
Lalande 26147	6.5	+1.41	- 1.4	- 7 6.1	18 48.9	+11 10.4	-0.8288	0.5701	-0.1936	-12	-90
JULY.											
ξ^1 Libræ	5.7	+1.65	- 1.2	-11 30.9	**1** 10 24.6	+ 2 12.4	+0.6726	0.5790	-0.1801	+76	+ 1
ξ^2 Libræ	5.7	1.66	0.9	11 1.9	11 25.3	+ 3 10.9	+0.0070	0.5795	0.1790	+33	-36
17 Libræ	6.4	1.66	0.8	10 46.7	12 2.4	+ 3 46.6	-0.3561	0.5799	0.1783	+13	-58
18 Libræ	5.9	1.66	- 0.8	10 46.0	12 19.6	+ 4 3.2	-0.4181	0.5801	0.1780	+10	-62
Mayer 616	5.9	1.81	+ 0.1	12 2.1	22 43.7	- 9 55.9	-0.9414	0.5864	0.1654	-23	-90
γ Libræ	4.1	+1.88	+ 0.1	-14 28.6	**2** 3 29.0	- 5 21.4	+0.7154	0.5892	-0.1589	+76	+ 4
Bradley 1987	6.5	1.92	0.4	14 44.5	6 41.9	- 2 15.6	+0.4756	0.5911	0.1542	+58	-10
η Libræ	5.5	1.93	0.3	15 22.4	6 57.6	- 2 0.8	+1.0625	0.5913	0.1538	+75	+28
W. B. xv, 839	6.2	1.94	1.1	13 51.0	10 2.6	+ 0 57.1	-0.9167	0.5931	0.1490	-23	-90
W. B. xv, 910	6.4	1.96	1.2	14 7.4	11 53.5	+ 2 43.8	-0.9179	0.5942	0.1460	-24	-90
B. D.-14°,4314	6.2	+1.97	+ 1.1	-14 33.3	12 0.7	+ 2 50.7	-0.5078	0.5942	-0.1458	+ 1	-70
48 Libræ	4.6	1.96	1.3	14 0.5	12 40.8	+ 3 29.2	-1.1462	0.5946	0.1447	-42	-90
49 Libræ	5.4	1.98	0.7	16 15.4	13 32.1	+ 4 18.5	+0.9596	0.5951	0.1433	+74	+20
φ Ophiuchi	4.4	2.11	2.6	16 24.4	**3** 1 44.2	- 7 58.1	-0.5097	0.6017	0.1214	- 2	-70
24 Scorpii	5.0	2.16	2.9	17 33.6	5 48.3	- 4 3.7	+0.1523	0.6037	0.1135	+34	-27
B. A. C. 5712	6.5	+2.22	+ 3.8	-18 6.1	12 51.2	+ 2 42.2	-0.0612	0.6068	-0.0989	+20	-40
29 Ophiuchi	6.4	2.23	3.8	18 44.8	13 39.8	+ 3 28.8	+0.4969	0.6071	0.0972	+54	- 8
Piazzi xvi, 297	6.2	2.23	4.4	17 29.0	16 8.7	+ 5 51.8	-0.9860	0.6080	0.0918	-34	-90
Piazzi xvii, 43	6.0	2.26	5.0	17 39.4	20 37.0	+10 9.1	-1.2036	0.6096	0.0820	-55	-90
B. D.-18°,4516	6.3	2.28	5.1	18 21.4	22 25.0	+11 52.7	-0.6555	0.6101	0.0780	-13	-87
Mayer 722	6.3	+2.33	+ 6.8	-18 47.0	**4** 10 20.2	- 0 41.3	-0.9998	0.6127	-0.0502	-39	-90
B. A. C. 6081	6.4	2.36	6.8	20 19.8	11 51.8	+ 0 46.5	+0.4567	0.6129	0.0466	+47	-10
Lalande 33327	6.3	2.36	7.5	19 51.5	16 8.2	+ 4 52.4	-0.1876	0.6133	0.0363	+ 8	-48
μ Sagittarii	4.0	2.38	7.5	21 4.9	17 4.4	+ 5 46.2	+0.9910	0.6133	0.0340	+69	+24
15 Sagittarii	5.3	2.38	7.6	20 45.3	17 37.7	+ 6 18.2	+0.6482	0.6134	0.0327	+61	+ 1
16 Sagittarii	5.9	+2.37	+ 7.6	-20 24.9	17 38.1	+ 6 18.5	+0.3111	0.6134	-0.0326	+36	-18
Y Sagittarii	Var.	2.35	8.0	18 54.0	19 59.8	+ 8 34.4	-1.2595	0.6134	0.0269	-68	-90
21 Sagittarii	5.0	2.38	8.1	20 35.4	21 28.5	+ 9 59.4	+0.3782	0.6133	0.0233	+39	-15
Bradley 2332	5.7	2.39	8.8	21 28.4	**5** 2 13.5	- 9 27.3	+1.1722	0.6130	0.0117	+69	+43
B. A. C. 6347	5.9	2.38	8.8	21 7.6	2 36.5	- 9 5.3	+0.8245	0.6130	0.0107	+69	+12
B.D.-21°, 5131	6.3	+2.38	+ 9.1	-21 5.7	5 2.6	- 6 45.2	+0.7738	0.6127	-0.0048	+69	+ 9
29 Sagittarii	5.3	2.37	9.4	20 25.8	6 42.8	- 5 9.1	+0.1083	0.6124	-0.0007	+21	-30
33 Sagittarii	5.8	2.38	9.6	21 28.4	8 20.7	- 3 35.2	+1.1474	0.6122	+0.0033	+69	+40
ξ^1 Sagittarii	5.1	2.37	9.7	20 46.6	9 37.8	- 2 21.3	+0.4623	0.6119	0.0064	+44	-10
ξ^2 Sagittarii	3.7	2.38	9.8	21 13.7	9 46.2	- 2 13.3	+0.9116	0.6119	0.0067	+69	+19
Lalande 35497	6.1	+2.35	+10.0	-19 22.8	11 50.1	- 0 14.5	-0.9082	0.6115	+0.0117	-36	-90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JULY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x′*	*y′*	N.	S.
		Δα	Δδ								
		s	"	° ′	d h m	h m				°	°
B.D.-19°,5275	6.4	+2.34	+10.0	-19 14.2	5 11 51.4	- 0 13.2	-1.0502	0.6114	+0.0118	-46	-90
Bradley 2402	5.4	2.34	10.3	19 26.1	13 49.6	+ 1 40.3	-0.8250	0.6107	0.0165	-30	-90
π Sagittarii	3.0	2.37	10.3	21 10.2	14 22.2	+ 2 11.5	+0.9124	0.6107	0.0178	+69	+18
B. A. C. 6550	6.3	2.35	10.3	19 57.0	14 24.1	+ 2 13.3	-0.3032	0.6107	0.0179	0	-55
d Sagittarii	5.1	2.33	10.7	19 7.1	17 25.1	+ 5 6.9	-1.0676	0.6098	0.0251	-47	-90
B. A. C. 6616	6.4	+2.33	+10.8	-19 24.4	18 56.7	+ 6 34.8	-0.7380	0.6093	+0.0288	-24	-90
Mayer 814	6.1	2.30	11.4	19 3.5	6 0 40.0	-11 55.9	-0.8862	0.6071	0.0421	-32	-90
f Sagittarii	5.1	2.29	11.8	19 59.0	4 31.0	- 8 14.1	+0.2194	0.6054	0.0510	+32	-24
57 Sagittarii	6.0	2.28	12.1	19 16.8	6 48.0	- 6 2.6	-0.3630	0.6044	0.0561	0	-60
σ Capricorni	5.5	2.21	13.0	19 24.5	17 32.1	+ 4 16.1	+0.4943	0.5985	0.0793	+53	- 8
π Capricorni	5.1	+2.18	+13.1	-18 31.0	20 43.0	+ 7 19.5	-0.1419	0.5964	+0.0859	+15	-45
ρ Capricorni	5.0	2.18	13.1	18 7.3	21 20.5	+ 7 55.6	-0.4870	0.5961	0.0871	- 4	-69
o Capricorni	5.6	2.18	13.2	18 53.5	21 44.8	+ 8 19.0	+0.3256	0.5958	0.0879	+42	-18
υ Capricorni	5.3	2.14	13.5	18 28.0	7 1 51.4	-11 44.2	+0.2752	0.5932	0.0961	+40	-21
B.D. -18°,5783	6.4	2.12	13.7	18 22.7	5 38.7	- 8 5.4	+0.5654	0.5905	0.1032	+60	- 4
19 Capricorni	5.7	+2.10	+13.8	-18 16.5	7 53.3	- 5 55.9	+0.6977	0.5888	+0.1074	+72	+ 4
Mayer 889	5.7	2.07	13.6	16 23.4	9 5.6	- 4 46.4	-1.0872	0.5880	0.1095	-40	-90
21 Capricorni	6.5	2.07	13.9	17 53.6	10 23.8	- 3 31.1	+0.5856	0.5870	0.1118	+62	- 3
θ Capricorni	4.1	2.03	13.9	17 36.2	12 30.3	- 1 29.3	+0.5302	0.5856	0.1156	+59	- 6
B.D.-17°,6216	6.1	2.01	14.1	17 43.8	16 20.4	+ 2 12.2	+1.1174	0.5827	0.1221	+72	+34
29 Capricorni	5.5	+2.00	+13.8	-15 33.5	16 37.9	+ 2 29.0	-1.0626	0.5825	+0.1226	-37	-90
ι Capricorni	4.3	1.99	14.2	17 13.9	19 21.3	+ 5 6.5	+0.9852	0.5803	0.1269	+73	+22
42 Capricorni	5.1	1.90	13.7	14 27.8	8 3 39.0	-10 53.9	-0.7447	0.5741	0.1394	-13	-90
44 Capricorni	6.0	1.90	14.0	14 49.6	4 18.1	-10 16.2	-0.2811	0.5736	0.1403	+13	-53
45 Capricorni	5.8	1.89	14.1	15 10.6	4 42.5	- 9 52.6	+0.1365	0.5733	0.1409	+36	-28
μ Capricorni	5.1	+1.86	+13.9	-13 59.4	8 45.0	- 5 58.8	-0.5040	0.5702	+0.1464	+ 2	-70
ι Aquarii	4.4	1.80	14.0	14 19.3	14 33.9	- 0 22.1	+0.7116	0.5659	0.1537	+76	+ 4
42 Aquarii	5.5	1.75	13.8	13 17.8	19 12.9	+ 4 7.3	+0.3783	0.5622	0.1591	+53	-15
45 Aquarii	6.1	1.74	13.9	13 46.3	20 12.4	+ 5 4.7	+1.0301	0.5615	0.1602	+76	+25
σ Aquarii	4.8	1.68	13.2	11 9.3	9 1 31.1	+10 12.5	-0.8252	0.5576	0.1656	-15	-90
58 Aquarii	6.4	+1.68	+13.3	-11 23.0	1 59.5	+10 39.9	-0.5093	0.5572	+0.1661	+ 4	-70
70 Aquarii	6.1	1.60	13.1	11 2.9	9 46.6	- 5 48.5	+0.4614	0.5517	0.1731	+61	-11
h^1 Aquarii	5.4	1.53	12.1	8 11.9	17 38.6	+ 1 48.1	-1.1484	0.5464	0.1789	-36	-90
SATURN	.	.	.	7 44.7	20 59.6	+ 5 2.6	-1.0242	0.5453	0.1818	-26	-90
ψ^1 Aquarii	4.5	1.48	12.4	9 35.8	22 45.7	+ 6 45.3	+1.2512	0.5432	0.1822	+80	+45
χ Aquarii	5.3	+1.47	+12.0	- 8 14.2	23 14.8	+ 7 13.5	-0.0972	0.5429	+0.1825	+29	-42
B. A. C. 8214	6.5	1.38	11.6	7 58.9	10 8 20.4	- 7 58.1	+1.3186	0.5375	0.1871	+82	+56
27 Piscium	5.1	1.28	9.8	4 4.5	19 50.3	+ 3 10.5	-0.6677	0.5316	0.1911	- 1	-84
29 Piscium	5.1	1.26	9.6	3 32.9	21 25.0	+ 4 42.3	-0.9298	0.5308	0.1914	-17	-90
4 Ceti	6.3	1.24	9.3	3 4.2	11 0 23.8	+ 7 35.8	-0.8729	0.5295	0.1922	-13	-90
5 Ceti	6.3	+1.24	+ 9.2	- 2 58.1	0 38.0	+ 7 49.5	-0.9362	0.5294	+0.1922	-18	-90
B. A. C. 81	6.3	1.15	8.7	2 44.2	8 55.3	- 8 8.1	+0.4120	0.5261	0.1932	+61	-14
14 Ceti	5.4	1.11	7.8	- 1 1.2	14 35.1	- 2 38.4	-0.3452	0.5242	0.1934	+17	-57
26 Ceti	6.0	0.98	6.3	+ 0 51.9	12 5 15.2	+11 35.8	+0.4424	0.5202	0.1920	+64	-12
33 Ceti	6.1	0.95	5.8	1 56.8	8 46.9	- 8 58.6	-0.0593	0.5197	0.1914	+33	-39
f Piscium	5.3	+0.92	+ 5.1	+ 3 7.3	12 34.4	- 5 17.8	-0.6161	0.5191	+0.1904	+ 3	-78
Lalande 2632	6.5	0.87	4.8	3 3.0	17 20.9	- 0 39.5	+0.3681	0.5185	0.1890	+58	-16
ν Piscium	4.6	0.81	3.6	5 0.8	13 0 59.5	+ 6 45.8	-0.3483	0.5179	0.1862	+17	-56
Piazzi i, 249	6.5	0.71	2.1	7 17.1	13 18.9	- 5 16.1	-0.5871	0.5179	0.1803	+ 4	-74
64 Ceti	5.8	0.68	1.5	8 7.8	16 44.4	- 1 56.6	-0.9038	0.5182	0.1782	-15	-82
ξ^1 Ceti	4.6	+0.68	+ 1.4	+ 8 24.4	17 35.9	- 1 6.5	-1.0552	0.5182	+0.1778	-26	-82
25 Arietis	6.5	0.61	0.4	9 46.9	14 1 9.9	+ 6 14.1	-1.2466	0.5189	0.1730	-45	-80
ξ^2 Ceti	4.3	0.60	1.1	8 2.4	1 34.2	+ 6 37.7	+0.7467	0.5190	0.1727	+81	+ 7
B. F. 310	6.3	0.60	+ 0.7	9 8.8	2 18.6	+ 7 20.8	-0.3478	0.5191	0.1722	+17	-54
85 Ceti	6.3	0.55	- 0.1	10 20.5	9 3.0	-10 6.3	-0.5241	0.5202	0.1673	+ 7	-66
μ Ceti	4.3	+0.54	0.0	+ 9 43.1	10 19.6	- 8 52.0	+0.3783	0.5202	+0.1663	+59	-13

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JULY,

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		s	"	° ′	d h m	h m				°	°
W. B. ii, 1033	5.8	+0.45	−1.7	+12 49.5	**14** 21 27.6	+ 1 56.5	−1.2597	0.5228	+0.1570	−48	−77
B. D. +12°, 473	6.2	0.36	2.0	12 17.8	**15** 6 38.0	+10 50.7	+0.7273	0.5252	0.1483	+84	+ 9
f Tauri	4.3	0.34	2.3	12 36.9	10 3.9	− 9 49.5	+0.8777	0.5262	0.1449	+90	+19
B. D. +14°, 657	5.9	0.19	3.8	14 54.6	**16** 4 39.8	+ 8 12.7	+0.8356	0.5324	0.1237	+90	+19
B. D. +16°, 569	6.2	0.18	4.5	17 2.1	7 2.4	+10 31.0	−1.2284	0.5333	0.1208	−47	−73
48 Tauri	6.3	+0.16	−4.0	+15 9.9	8 41.4	−11 53.1	+1.0418	0.5339	+0.1187	+90	+34
γ Tauri	3.9	0.14	4.2	15 24.0	10 41.2	− 9 57.0	+1.0155	0.5346	0.1162	+90	+32
δ^1 Tauri	3.9	0.14	4.8	17 19.3	12 12.7	− 8 28.3	−0.9378	0.5353	0.1141	−19	−73
63 Tauri	5.7	0.14	4.6	16 33.4	12 27.9	− 8 13.6	−0.0623	0.5353	0.1138	+33	−30
δ^2 Tauri	4.9	0.14	4.8	17 13.5	12 47.3	− 7 54.8	−0.7660	0.5354	0.1134	− 8	−73
δ^3 Tauri	4.3	+0.13	−4.9	+17 42.7	13 28.1	− 7 15.3	−1.2281	0.5356	+0.1125	−47	−73
70 Tauri	6.4	0.12	4.4	15 43.5	13 34.2	− 7 9.4	+0.9842	0.5357	0.1124	+90	+31
75 Tauri	5.2	0.11	4.5	16 8.9	14 57.7	− 5 48.4	+0.6702	0.5362	0.1105	+88	+10
θ^1 Tauri	4.2	0.11	4.4	15 45.2	15 1.8	− 5 44.4	+1.1164	0.5362	0.1104	+90	+42
θ^2 Tauri	3.6	0.11	4.4	15 39.7	15 4.5	− 5 41.8	+1.2222	0.5362	0.1104	+90	+53
Bradley 619	4.8	+0.10	−4.5	+15 59.3	16 0.4	− 4 47.7	+0.9620	0.5366	+0.1091	+90	+29
B. D. +17°, 750	6.2	0.10	5.0	17 49.0	17 27.1	− 3 23.6	−0.9071	0.5372	0.1071	−17	−72
B. A. C. 1406	6.5	0.09	4.6	16 7.5	17 31.5	− 3 19.4	+0.9751	0.5372	0.1070	+90	+31
α Tauri	1.1	0.08	4.8	16 19.2	18 38.5	− 2 14.4	+0.8783	0.5376	0.1055	+90	+24
Mayer 177	6.1	0.05	5.4	18 33.8	23 40.6	+ 2 38.2	−1.0928	0.5395	0.0984	−32	−71
i Tauri	5.1	+0.03	−5.5	+18 40.7	**17** 2 9.5	+ 5 2.4	−0.9801	0.5405	+0.0949	−23	−71
Bradley 686	5.7	0.00	5.2	17 0.3	5 6.6	+ 7 53.9	+1.1445	0.5416	0.0905	+90	+47
m Tauri	5.0	−0.01	5.6	18 31.1	9 55.5	−11 26.4	−0.1097	0.5434	0.0832	+30	−29
B. A. C. 1651	6.5	0.08	6.0	19 43.1	16 24.5	− 5 9.8	−0.9274	0.5456	0.0731	−19	−70
119 Tauri	4.9	0.12	5.8	18 31.4	21 48.1	+ 0 3.4	+0.7615	0.5477	0.0644	+90	+21
120 Tauri	5.6	−0.12	−5.8	+18 28.3	22 25.7	+ 0 39.8	+0.8577	0.5478	+0.0634	+90	+28
Piazzi v, 125	6.1	0.12	6.2	20 24.4	22 26.8	+ 0 40.8	−1.2734	0.5479	0.0633	−62	−70
B. D. +19°, 1110	6.0	0.18	6.1	19 50.5	**18** 7 18.7	+ 9 15.5	−0.1546	0.5509	0.0485	+27	−29
χ^1 Orionis	4.5	0.19	6.2	20 15.4	8 14.9	+10 9.9	−0.5665	0.5511	0.0469	+ 4	−55
χ^2 Orionis	5.8	0.18	6.1	19 43.8	8 30.8	+10 25.2	+0.0260	0.5513	0.0465	+38	−18
χ^3 Orionis	5.1	−0.21	−6.1	+19 41.4	12 30.1	− 9 43.3	+0.2406	0.5525	+0.0396	+51	− 5
χ^4 Orionis	4.7	0.21	6.2	20 8.4	12 42.6	− 9 31.2	−0.2441	0.5526	0.0392	+22	−33
68 Orionis	5.7	0.23	6.1	19 48.6	16 29.8	− 5 51.6	+0.2534	0.5536	0.0326	+52	− 4
71 Orionis	5.1	0.24	6.2	19 11.2	17 49.7	− 4 34.3	+0.9789	0.5540	+0.0302	+90	+39
				NEW	*MOON.*						
α Leonis	1.4	−0.20	−2.4	+12 25.6	**23** 4 55.2	+ 2 54.7	+1.1675	0.5550	−0.1517	+90	+42
34 Leonis	6.4	0.19	2.2	13 49.1	6 24.7	+ 4 21.3	−0.5331	0.5547	0.1535	+ 7	−64
37 Leonis	5.5	0.19	1.9	14 11.8	8 45.3	+ 6 37.1	−1.2949	0.5544	0.1564	−56	−76
l Leonis	5.2	−0.06	1.6	11 2.5	23 59.2	− 2 39.1	−0.4821	0.5521	0.1733	+10	−62
Piazzi xi, 12	5.8	+0.05	−1.4	+ 8 34.5	**24** 11 37.4	+ 8 36.2	+0.0253	0.5507	−0.1838	+37	−32
ν Virginis	4.2	0.19	0.8	7 3.4	**25** 2 37.0	− 0 53.6	−1.2261	0.5497	0.1943	−42	−83
b Virginis	5.2	0.28	1.1	4 10.7	9 15.3	+ 5 31.7	+0.4630	0.5497	0.1978	+65	−10
c Virginis	5.1	0.37	0.6	3 50.2	18 52.0	− 9 10.5	−1.1006	0.5501	0.2015	−29	−86
Piazzi xii, 142	5.9	0.48	0.4	+ 2 22.3	**26** 3 18.5	− 1 0.7	−1.2950	0.5508	0.2034	−50	−88
80 Virginis	5.6	+0.85	−0.8	− 4 55.1	**27** 5 45.9	+ 0 34.1	+0.8102	0.5564	−0.2013	+85	+ 9
Piazzi xiii, 174	6.4	0.90	0.5	5 1.5	9 35.8	+ 4 16.3	+0.1511	0.5576	0.1999	+44	−28
n Virginis	6.5	0.93	−0.8	6 22.1	11 35.3	+ 6 11.7	+1.1244	0.5582	0.1991	+84	+31
Lalande 26147	6.5	1.11	+0.1	7 6.1	**28** 0 57.4	− 4 53.6	−0.7457	0.5633	0.1916	− 7	−82
ξ^1 Libræ	5.7	1.36	0.0	11 30.9	16 57.5	+10 32.8	+0.7668	0.5706	0.1779	+78	+ 7
ξ^2 Libræ	5.7	+1.37	+0.3	−11 1.8	17 59.9	+11 33.0	+0.0921	0.5711	−0.1768	+37	−31
17 Libræ	6.4	1.38	0.4	10 46.6	18 38.1	−11 50.2	−0.2761	0.5714	0.1762	+17	53
18 Libræ	5.9	1.38	0.5	10 46.0	18 55.8	−11 33.1	−0.3391	0.5716	0.1759	+14	−57
Mayer 616	5.9	1.53	1.2	12 2.0	**29** 5 38.3	− 1 13.7	−0.8758	0.5771	0.1633	−19	−90
γ Libræ	4.1	1.63	0.9	14 28.6	10 32.5	+ 3 29.7	+0.8013	0.5797	0.1568	+76	+10
Bradley 1987	6.5	+1.68	+1.1	−14 44.5	13 51.4	+ 6 41.3	+0.5561	0.5814	−0.1522	+64	− 5

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
JULY.											
		s	"	° '	d h m	h m				°	°
η Libræ	5.5	+1.68	+ 1.0	−15 22.4	**29** 14 7.6	+ 6 56.9	+1.1512	0.5816	−0.1518	+75	+36
W.B. xv, 839	6.2	1.70	1.9	13 51.0	17 18.5	+10 0.7	−0.8584	0.5833	0.1470	−19	−90
W.B. xv, 910	6.4	1.73	2.0	14 7.4	19 12.9	+11 50.9	−0.8609	0.5843	0.1441	−20	−90
B. D.−14°,4314	6.2	1.74	1.9	14 33.2	19 20.4	+11 58.1	−0.4450	0.5843	0.1439	+ 5	−65
48 Libræ	4.6	1.74	2.2	14 0.5	20 1.7	−11 22.2	−1.0930	0.5847	0.1429	−37	−90
49 Libræ	5.4	+1.76	+ 1.3	−16 15.4	20 54.6	−10 31.3	+1.0428	0.5851	−0.1415	+74	+27
φ Ophiuchi	4.4	1.92	3.0	16 24.4	**30** 9 30.4	+ 1 35.9	−0.4564	0.5916	0.1200	+ 1	−66
24 Scorpii	5.0	2.00	3.3	17 33.6	13 42.3	+ 5 38.1	+0.2125	0.5936	0.1122	+37	−23
B. A. C. 5712	6.5	2.10	4.1	18 6.1	20 58.7	−11 22.5	−0.0092	0.5968	0.0980	+23	−37
29 Ophiuchi	6.4	2.11	4.0	18 44.8	21 48.8	−10 34.3	+0.5563	0.5971	0.0963	+59	− 5
Piazzi xvi, 297	6.2	+2.12	+ 4.7	−17 29.0	**31** 0 22.4	− 8 6.7	−0.9494	0.5982	−0.0911	−31	−90
Piazzi xvii, 43	6.0	2.17	5.2	17 39.4	4 58.9	− 3 41.2	−1.1731	0.5999	0.0814	−51	−90
B. D. −18°,4516	6.3	2.20	5.3	18 21.4	6 50.2	− 1 54.3	−0.6187	0.6006	0.0774	−12	−82
Mayer 722	6.3	2.32	6.9	18 47.0	19 6.0	+ 9 52.3	−0.9756	0.6040	0.0502	−37	−90
B. A. C. 6081	6.4	+2.36	+ 6.8	−20 19.8	20 40.2	+11 22.8	+0.4981	0.6044	−0.0466	+50	− 8
AUGUST.											
Lalande 33327	6.3	+2.38	+ 7.5	−19 51.5	**1** 1 3.4	− 8 24.5	−0.1574	0.6050	−0.0365	+ 9	−46
μ Sagittarii	4.0	2.41	7.3	21 4.9	2 1.0	− 7 29.3	+1.0345	0.6052	0.0343	+69	+28
15 Sagittarii	5.3	+2.41	+ 7.5	−20 45.3	2 35.2	− 6 56.4	+0.6873	0.6053	−0.0329	+65	+ 4
16 Sagittarii	5.9	2.40	7.5	20 24.9	2 35.5	− 6 56.2	+0.3462	0.6053	0.0329	+38	−16
Y Sagittarii	Var.	2.39	8.2	18 54.0	5 0.8	− 4 36.7	−1.2446	0.6056	0.0273	−65	−90
21 Sagittarii	5.0	2.43	8.1	20 35.4	6 31.7	− 3 9.4	+0.4111	0.6057	0.0237	+42	−13
Bradley 2332	5.7	2.47	8.6	21 28.4	11 23.5	+ 1 30.7	+1.2100	0.6059	0.0123	+69	+48
B. A. C. 6347	5.9	+2.47	+ 8.6	−21 7.6	11 47.0	+ 1 53.2	+0.8582	0.6059	−0.0114	+69	+15
B.D. −21°, 5131	6.3	2.48	9.0	21 5.7	14 16.4	+ 4 16.6	+0.8049	0.6059	0.0055	+69	+11
29 Sagittarii	5.3	2.48	9.4	20 25.8	15 58.7	+ 5 54.8	+0.1312	0.6058	−0.0014	+22	−29
33 Sagittarii	5.8	2.51	9.4	21 28.4	17 38.8	+ 7 30.9	+1.1795	0.6057	+0.0025	+69	+44
ξ¹ Sagittarii	5.1	2.50	9.7	20 46.6	18 57.4	+ 8 46.3	+0.4865	0.6057	0.0056	+46	− 8
ξ² Sagittarii	3.7	+2.51	+ 9.7	−21 13.7	19 6.0	+ 8 54.5	+0.9402	0.6056	+0.0060	+69	+21
Lalande 35497	6.1	2.49	10.2	19 22.7	21 12.3	+10 55.8	−0.8988	0.6054	0.0109	−35	−90
B.D. −19°,5275	6.4	2.49	10.2	19 14.2	21 13.7	+10 57.2	−1.0422	0.6054	0.0110	−46	−90
Bradley 2402	5.4	2.50	10.4	19 26.1	23 14.2	−11 7.2	−0.8160	0.6052	0.0157	−29	−90
π Sagittarii	3.0	2.53	10.3	21 10.2	23 47.4	−10 35.3	+0.9370	0.6051	0.0170	+69	+21
B. A. C. 6550	6.3	+2.51	+10.5	−19 57.0	23 49.3	−10 33.5	−0.2897	0.6051	+0.0170	0	−54
d Sagittarii	5.1	2.51	10.9	19 7.1	**2** 2 53.6	− 7 36.6	−1.0628	0.6046	0.0242	−46	−90
B. A. C. 6616	6.4	2.52	11.1	19 24.4	4 26.7	− 6 7.3	−0.7312	0.6043	0.0278	−23	−90
Mayer 814	6.1	2.53	11.8	19 3.4	10 15.5	− 0 32.3	−0.8839	0.6029	0.0412	−32	−90
f Sagittarii	5.1	2.54	12.1	19 59.0	14 9.8	+ 3 12.7	+0.2274	0.6017	0.0500	+32	−23
57 Sagittarii	6.0	+2.54	+12.5	−19 16.8	16 28.6	+ 5 26.0	−0.3605	0.6010	+0.0551	0	−59
σ Capricorni	5.5	2.54	13.6	19 24.5	**3** 3 19.1	− 8 8.9	+0.4944	0.5965	0.0784	+53	− 8
π Capricorni	5.1	2.53	14.0	18 31.0	6 31.5	− 5 3.9	−0.1469	0.5950	0.0850	+15	−45
ρ Capricorni	5.0	2.52	14.0	18 7.3	7 9.3	− 4 27.5	−0.4937	0.5947	0.0863	− 4	−70
o Capricorni	5.6	2.53	14.0	18 53.4	7 33.8	− 4 4.1	+0.3220	0.5944	0.0871	+42	−18
v Capricorni	5.3	+2.52	+14.4	−18 28.0	11 41.7	− 0 5.6	+0.2685	0.5923	+0.0953	+39	−21
B.D. −18°,5783	6.4	2.52	14.7	18 22.7	15 29.9	+ 3 33.8	+0.5572	0.5902	0.1026	+60	− 5
19 Capricorni	5.7	2.50	14.9	18 16.5	17 44.9	+ 5 43.8	+0.6883	0.5889	0.1068	+70	+ 3
Mayer 889	5.7	2.49	15.0	16 23.4	18 57.4	+ 6 53.5	−1.1015	0.5882	0.1090	−42	−90
21 Capricorni	6.5	2.49	15.1	17 53.6	20 15.7	+ 8 8.9	+0.5741	0.5874	0.1114	+61	− 4
θ Capricorni	4.1	+2.49	+15.2	−17 36.2	22 22.4	+10 10.9	+0.5172	0.5861	+0.1151	+58	− 7
B. D. −17°,6216	6.1	2.47	15.5	17 43.8	**4** 2 12.4	−10 7.7	+1.1025	0.5838	0.1217	+72	+33
29 Capricorni	5.5	2.46	15.5	15 33.5	2 29.8	− 9 51.0	−1.0800	0.5836	0.1222	−38	−90
ι Capricorni	4.3	2.46	15.7	17 13.8	5 13.0	− 7 13.8	+0.9681	0.5819	0.1267	+73	+21
42 Capricorni	5.1	2.40	15.8	14 27.8	13 29.0	+ 0 44.1	−0.7665	0.5765	0.1395	−14	−90
44 Capricorni	6.0	+2.41	+16.0	−14 49.5	14 7.9	+ 1 21.6	−0.3035	0.5761	+0.1405	+12	−55

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

AUGUST.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		s	"	° '	d h m	h m				°	°
45 Capricorni	5.8	+2.41	+16.1	−15 10.6	4 14 32.2	+ 1 45.1	+0.1136	0.5758	+0.1410	+35	−30
μ Capricorni	5.1	2.39	16.2	13 59.4	18 33.2	+ 5 37.4	−0.5279	0.5734	0.1467	0	−72
ι Aquarii	4.4	2.35	16.3	14 19.3	5 0 19.5	+11 11.6	+0.6824	0.5692	0.1542	+74	+ 2
42 Aquarii	5.5	2.32	16.4	13 17.8	4 56.0	− 8 21.6	+0.3476	0.5661	0.1597	+51	−17
45 Aquarii	6.1	2.32	16.4	13 46.3	5 54.8	− 7 24.8	+0.9970	0.5654	0.1609	+76	+22
σ Aquarii	4.8	+2.28	+16.2	−11 9.3	11 10.3	− 2 20.2	−0.8546	0.5619	+0.1666	−16	−90
58 Aquarii	6.4	2.28	16.2	11 23.0	11 38.3	− 1 53.1	−0.5400	0.5616	0.1670	+ 2	−72
70 Aquarii	6.1	2.23	16.2	11 2.8	19 19.6	+ 5 32.6	+0.4238	0.5566	0.1743	+58	−13
h^1 Aquarii	5.4	2.18	15.7	8 11.8	6 3 4.9	−10 57.6	−1.1806	0.5517	0.1804	−39	−90
SATURN	. .	. .	. .	8 17.1	4 24.5	− 9 40.6	−0.8502	0.5534	0.1825	−14	−90
ψ^1 Aquarii	4.5	+2.15	+15.9	− 9 35.7	8 7.4	− 6 5.0	+1.2047	0.5487	+0.1839	+80	+40
χ Aquarii	5.3	2.14	15.7	8 14.1	8 36.0	− 5 37.3	−0.1364	0.5484	0.1841	+26	−44
B. A. C. 8214	6.5	2.07	15.4	7 58.8	17 32.8	+ 3 2.3	+1.2684	0.5433	0.1890	+82	+47
Mayer 1012	6.3	2.02	15.0	6 53.9	23 52.1	+ 9 9.6	+1.3314	0.5400	0.1915	+83	+59
27 Piscium	5.1	1.99	14.1	4 4.4	7 4 50.7	−10 1.2	−0.7077	0.5375	0.1931	− 4	−90
29 Piscium	5.1	+1.99	+14.0	− 3 32.8	6 23.8	− 8 30.9	−0.9683	0.5368	+0.1935	−20	−90
4 Ceti	6.3	1.96	13.7	3 4.1	9 19.4	− 5 40.9	−0.9120	0.5354	0.1941	−16	−90
5 Ceti	6.3	1.96	13.7	2 58.0	9 33.4	− 5 27.2	−0.9748	0.5353	0.1942	−20	−90
B. A. C. 81	6.3	1.90	13.2	2 44.1	17 41.9	+ 2 26.3	+0.3631	0.5319	0.1953	+58	−16
14 Ceti	5.4	1.87	12.5	− 1 1.1	23 15.6	+ 7 49.8	−0.3892	0.5298	0.1956	+15	−60
26 Ceti	6.0	+1.76	+11.1	+ 0 52.0	8 13 40.8	− 2 10.8	+0.3926	0.5253	+0.1939	+60	−15
33 Ceti	6.1	1.73	10.6	1 56.9	17 9.0	+ 1 11.3	−0.1056	0.5246	0.1932	+30	−42
f Piscium	5.3	1.71	10.0	3 7.3	20 52.8	+ 4 48.4	−0.6587	0.5238	0.1922	0	−83
Lalande 2632	6.5	1.67	9.7	3 3.0	9 1 35.0	+ 9 22.3	+0.3193	0.5230	0.1907	+55	−18
ν Piscium	4.6	1.62	8.5	5 0.9	9 7.0	− 7 19.0	−0.3918	0.5220	0.1877	+15	−59
Piazzi i, 249	6.5	+1.53	+ 6.9	+ 7 17.2	21 17.0	+ 4 29.7	−0.6280	0.5213	+0.1816	+ 2	−77
64 Ceti	5.8	1.52	6.3	8 7.9	10 0 40.2	+ 7 47.0	−0.9427	0.5211	0.1795	−18	−82
ξ^1 Ceti	4.6	1.50	6.2	8 24.5	1 31.2	+ 8 36.5	−1.0929	0.5211	0.1789	−29	−82
25 Arietis	6.5	1.44	5.1	9 47.0	9 0.6	− 8 7.2	−1.2825	0.5213	0.1740	−50	−80
ξ^2 Ceti	4.3	1.43	5.7	8 2.4	9 24.7	− 7 43.9	+0.7012	0.5213	0.1737	+90	+ 5
B. F. 310	6.3	+1.43	+ 5.3	+ 9 8.9	10 8.7	− 7 1.1	−0.3880	0.5214	+0.1732	+15	−57
85 Ceti	6.3	1.38	4.3	10 20.6	16 49.7	− 0 31.8	−0.5622	0.5220	0.1681	+ 5	−69
μ Ceti	4.3	1.37	4.4	9 43.1	18 5.7	+ 0 41.9	+0.3367	0.5221	0.1671	+57	−15
W. B. ii, 1033	5.8	1.29	2.5	12 49.6	11 5 9.6	+11 26.1	−1.2928	0.5237	0.1575	−54	−77
B. D. +12°, 473	6.2	1.19	2.0	12 17.8	14 17.5	− 3 42.2	+0.6897	0.5255	0.1486	+89	+ 7
f Tauri	4.3	+1.16	+ 1.6	+12 36.9	17 42.8	− 0 23.0	+0.8406	0.5263	+0.1451	+90	+17
B. D. +14°, 657	5.9	0.99	− 0.4	14 54.7	12 12 17.4	− 6 22.0	+0.8046	0.5314	0.1238	+90	+17
B. D. +16°, 569	6.2	0.99	1.4	17 2.1	14 40.0	− 4 3.7	−1.2553	0.5322	0.1208	−51	−73
48 Tauri	6.3	0.96	0.8	15 9.9	16 19.1	− 2 27.6	+1.0116	0.5327	0.1187	+90	+32
γ Tauri	3.9	0.94	1.1	15 24.0	18 19.0	− 0 31.5	+0.9859	0.5333	0.1161	+90	+30
δ^1 Tauri	3.9	+0.94	− 1.8	+17 19.3	19 50.6	+ 0 57.4	−0.9640	0.5338	+0.1141	−21	−73
63 Tauri	5.7	0.94	1.6	16 33.5	20 5.8	+ 1 12.1	−0.0897	0.5339	0.1138	+30	−32
δ^2 Tauri	4.9	0.94	1.8	17 13.6	20 25.3	+ 1 31.0	−0.7923	0.5340	0.1133	−10	−73
δ^3 Tauri	4.3	0.94	2.0	17 42.8	21 6.2	+ 2 10.6	−1.2536	0.5342	0.1124	−51	−72
70 Tauri	6.4	0.92	1.4	15 43.6	21 12.3	+ 2 16.5	+0.9556	0.5344	0.1123	+90	+29
75 Tauri	5.2	+0.90	− 1.6	+16 9.0	22 35.8	+ 3 37.4	+0.6425	0.5348	+0.1104	+84	+ 9
θ^1 Tauri	4.2	0.90	1.5	15 45.2	22 39.9	+ 3 41.4	+1.0879	0.5348	0.1103	+90	+39
θ^2 Tauri	3.6	0.90	1.4	15 39.7	22 42.7	+ 3 44.1	+1.1937	0.5348	0.1103	+90	+49
Bradley 619	4.8	0.89	1.6	15 59.4	23 38.6	+ 4 38.3	+0.9342	0.5351	0.1090	+90	+27
B. D. +17°, 750	6.2	0.89	2.3	17 49.1	13 1 5.5	+ 6 2.5	−0.9321	0.5356	0.1070	−19	−72
B. A. C. 1406	6.5	+0.88	− 1.7	+16 7.5	1 9.8	+ 6 6.6	+0.9477	0.5356	+0.1069	+90	+28
a Tauri	1.1	0.87	2.0	16 19.2	2 17.1	+ 7 11.9	+0.8514	0.5360	0.1054	+90	+22
Mayer 177	6.1	0.84	3.0	18 33.9	7 19.8	−11 54.9	−1.1162	0.5377	0.0983	−35	−71
i Tauri	5.1	0.81	3.1	18 40.8	9 49.0	− 9 30.4	−1.0031	0.5386	0.0947	−24	−71
Bradley 686	5.7	0.76	2.7	17 0.4	12 46.6	− 6 38.4	+1.1202	0.5397	0.0904	+90	+44
m Tauri	5.0	+0.74	− 3.5	+18 31.1	17 36.3	− 1 57.8	−0.1317	0.5414	+0.0831	+29	−31

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

AUGUST.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x′*	*y′*	N.	S.
		Δα	Δδ								
		s	"	° ′	d h m	h m				°	°
B. A. C. 1651	6.5	+0.67	−4.2	+19 43.1	**14** 0 6.5	+4 19.9	−0.9473	0.5437	+0.0731	−21	−70
119 Tauri	4.9	0.60	4.0	18 31.4	5 31.1	+9 34.1	+0.7418	0.5456	0.0644	+90	+20
120 Tauri	5.6	0.60	4.0	18 28.4	6 8.8	+10 10.6	+0.8381	0.5458	0.0634	+90	+26
B. D. +19°, 1110	6.0	0.52	4.8	19 50.6	15 3.4	−5 12.1	−0.1714	0.5488	0.0486	+26	−29
χ^1 Orionis	4.5	0.50	5.0	20 15.5	15 59.9	−4 17.5	−0.5827	0.5491	0.0469	+3	−57
χ^2 Orionis	5.8	+0.50	−4.8	+19 43.8	16 15.8	−4 2.1	+0.0093	0.5492	+0.0465	+37	−19
χ^3 Orionis	5.1	0.46	4.9	19 41.5	20 15.7	−0 10.1	+0.2245	0.5505	0.0396	+50	−6
χ^4 Orionis	4.7	0.46	5.0	20 8.4	20 28.3	+0 2.2	−0.2597	0.5506	0.0393	+21	−34
68 Orionis	5.7	0.43	5.1	19 48.6	**15** 0 16.0	+3 42.3	+0.2380	0.5518	0.0326	+51	−5
71 Orionis	5.1	0.41	5.0	19 11.2	1 36.2	+5 0.0	+0.9631	0.5523	0.0303	+90	+38
15 Geminorum	6.5	+0.36	−5.6	+20 50.8	7 34.7	+10 46.5	−0.7043	0.5539	+0.0197	−6	−66
16 Geminorum	6.2	0.36	5.4	20 33.1	7 39.7	+10 51.4	−0.3806	0.5540	0.0195	+15	−40
ν Geminorum	4.0	0.35	5.4	20 16.2	8 8.3	+11 19.0	−0.0641	0.5541	+0.0187	+32	−20
ζ Geminorum	Var.	0.21	5.7	20 42.4	**16** 0 18.5	+2 56.7	−0.4751	0.5582	−0.0109	+9	−46
56 Geminorum	5.2	0.14	5.6	20 37.2	8 27.2	+10 48.9	−0.5293	0.5597	0.0260	+6	−52
61 Geminorum	5.8	+0.12	−5.6	+20 26.7	10 43.5	−10 59.4	−0.4022	0.5601	−0.0303	+13	−42
79 Geminorum	6.3	0.06	5.6	20 32.4	18 59.7	−3 0.1	−0.8185	0.5613	0.0457	−12	−69
g Geminorum	5.0	0.06	5.2	18 44.3	19 28.1	−2 32.7	+1.1061	0.5613	0.0465	+90	+48
B. A. C. 2605	6.2	0.05	5.3	19 33.9	22 5.4	−0 0.8	+0.0852	0.5616	0.0514	+41	−15
85 Geminorum	5.2	0.03	5.4	20 7.9	23 45.8	+1 36.2	−0.6139	0.5618	0.0545	+1	−60
B. D. +20°, 1976	6.3	+0.02	−5.3	+20 4.4	**17** 2 5.2	+3 50.9	−0.6820	0.5620	−0.0587	−3	−67
B. F. 1128	6.1	0.01	5.1	19 6.4	3 53.6	+5 35.6	+0.2492	0.5622	0.0621	+51	−7
				NEW	*MOON.*						
ν Virginis	4.2	0.04	0.4	7 3.4	**21** 8 52.6	+7 9.5	−1.2334	0.5558	0.1966	−42	−83
b Virginis	5.2	+0.10	−0.4	+4 10.7	15 23.7	−10 32.5	+0.4416	0.5557	−0.2001	+64	−12
10 Virginis	6.2	0.14	−0.6	2 25.5	19 53.7	−6 11.5	+1.3405	0.5556	0.2021	+90	+61
c Virginis	5.1	0.15	+0.2	3 50.2	**22** 0 50.4	−1 24.7	−1.1135	0.5557	0.2038	−30	−86
Piazzi xii, 142	5.9	0.23	0.5	+2 22.3	9 8.7	+6 37.0	−1.3094	0.5561	0.2056	−52	−88
80 Virginis	5.6	0.52	0.6	−4 55.0	**23** 11 16.4	+7 52.0	+0.7795	0.5595	0.2027	+85	+7
Piazzi xiii, 174	6.4	+0.56	+0.8	−5 1.5	15 4.4	+11 32.2	+0.1216	0.5604	−0.2012	+42	−29
n Virginis	6.5	0.59	0.6	6 22.1	17 3.0	−10 33.3	+1.0924	0.5609	0.2003	+84	+29
Lalande 26147	6.5	0.74	1.4	7 6.1	**24** 6 21.2	+2 17.5	−0.7773	0.5645	0.1922	−7	−90
ξ^1 Libræ	5.7	0.97	1.3	11 30.9	22 21.6	−6 15.7	+0.7340	0.5699	0.1778	+78	+4
ξ^2 Libræ	5.7	0.98	1.6	11 1.8	23 24.2	−5 15.4	+0.0577	0.5703	0.1767	+36	−33
17 Libræ	6.4	+0.98	+1.7	−10 46.6	**25** 0 2.5	−4 38.4	−0.3115	0.5705	−0.1760	+15	−55
18 Libræ	5.9	0.98	1.7	10 46.0	0 20.2	−4 21.3	−0.3747	0.5706	0.1757	+12	−59
Mayer 616	5.9	1.13	2.3	12 2.0	11 6.7	+6 2.0	−0.9153	0.5748	0.1628	−21	−90
γ Libræ	4.1	1.22	1.9	14 28.5	16 3.4	+10 47.9	+0.7689	0.5767	0.1561	+76	+7
Bradley 1987	6.5	1.27	2.1	14 44.5	19 24.5	−9 58.3	+0.5226	0.5778	0.1514	+62	−7
η Libræ	5.5	+1.28	+1.9	−15 22.4	19 40.8	−9 42.6	+1.1209	0.5782	−0.1509	+75	+33
W. B. xv, 839	6.2	1.30	2.8	13 51.0	22 54.0	−6 36.4	−0.9001	0.5795	0.1462	−22	−90
W. B. xv, 910	6.4	1.33	2.9	14 7.4	**26** 0 49.8	−4 45.0	−0.9030	0.5801	0.1432	−23	−90
B. D. −14°, 4314	6.2	1.34	2.7	14 33.2	0 57.4	−4 37.6	−0.4845	0.5803	0.1430	+2	−68
48 Libræ	4.6	1.34	3.0	14 0.5	1 39.3	−3 57.2	−1.1367	0.5806	0.1420	−41	−90
49 Libræ	5.4	+1.35	+2.0	−16 15.4	2 32.9	−3 5.7	+1.0127	0.5809	−0.1405	+74	+24
φ Ophiuchi	4.4	1.55	3.6	16 24.4	15 20.5	+9 13.3	−0.4969	0.5859	0.1189	−1	−70
24 Scorpii	5.0	1.62	3.7	17 33.6	19 37.1	−10 39.8	+0.1776	0.5875	0.1110	+35	−26
B. A. C. 5712	6 5	1.72	4.3	18 6.1	**27** 3 2.2	−3 31.5	−0.0457	0.5900	0.0968	+21	−39
29 Ophiuchi	6.4	1.74	4.2	18 44.8	3 53.3	−2 42.4	+0.5253	0.5903	0.0952	+56	−7
Piazzi xvi, 297	6.2	+1.76	+4.9	−17 29.0	6 30.2	−0 11.4	−0.9950	0.5911	−0.0899	−35	−90
Piazzi xvii, 43	6.0	1.82	5.4	17 39.4	11 12.9	+4 20.4	−1.2208	0.5924	0.0803	−57	−90
B. D. −18°, 4516	6.3	1.86	5.4	18 21.4	13 6.7	+6 9 9	−0.6604	0.5930	0.0764	−14	−88
Mayer 722	6.3	2.01	6.8	18 47.0	**28** 1 40.6	−5 45.5	−1.0204	0.5956	0.0494	−41	−90
B. A. C. 6081	6.4	2.06	6 4	20 19.9	3 17.1	−4 12.8	+0.4706	0.5959	0.0458	+48	−9
Lalande 33327	6.3	+2.10	+7.2	−19 51.5	7 47.1	+0 6.7	−0.1916	0.5965	−0.0358	+7	−48

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

AUGUST.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		s	"	° '	d h m	h m				°	°
μ Sagittarii	4.0	+2.13	+ 6.9	−21 4.9	**28** 8 46.2	+ 1 3.4	+1.0145	0.5966	−0.0336	+69	+26
15 Sagittarii	5.3	2.13	7.1	20 45.3	9 21.3	+ 1 37.2	+0.6633	0.5966	0.0323	+63	+ 2
16 Sagittarii	5.9	2.12	7.2	20 24.9	9 21.6	+ 1 37.4	+0.3182	0.5966	0.0323	+37	−18
21 Sagittarii	5.0	2.17	7.6	20 35.4	13 24.1	+ 5 30.5	+0.3848	0.5970	0.0232	+40	−14
Bradley 2332	5.7	2.24	7.9	21 28.4	18 23.7	+10 18.4	+1.1945	0.5971	0.0118	+69	+46
B. A. C. 6347	5.9	+2.23	+ 8.1	−21 7.7	18 47.8	+10 41.6	+0.8385	0.5971	−0.0109	+69	+13
B.D. −21°,5131	6.3	2.26	8.4	21 5.7	21 21.2	−10 51.0	+0.7852	0.5971	0.0051	+69	+10
29 Sagittarii	5.3	2.27	8.8	20 25.8	23 6.3	− 9 10.0	+0.1039	0.5970	−0.0012	+21	−30
33 Sagittarii	5.8	2.30	8.7	21 28.4	**29** 0 49.0	− 7 31.3	+1.1653	0.5969	+0.0027	+69	+42
ξ^1 Sagittarii	5.1	2.30	9.1	20 46.6	2 9.8	− 6 13.6	+0.4643	0.5968	0.0058	+44	−10
ξ^2 Sagittarii	3.7	+2.31	+ 9.0	−21 13.7	2 18.5	− 6 5.3	+0.9235	0.5968	+0.0061	+69	+20
Lalande 35497	6.1	2.30	9.7	19 22.8	4 28.3	− 4 0.6	−0.9370	0.5967	0.0110	−38	−90
B.D. −19°,5275	6.4	2.30	9.8	19 14.2	4 29.7	− 3 59.2	−1.0821	0.5967	0.0111	−49	−90
Bradley 2402	5.4	2.32	10.0	19 26.1	6 33.4	− 2 0.3	−0.8526	0.5964	0.0157	−32	−90
π Sagittarii	3.0	2.35	9.5	21 10.2	7 7.5	− 1 27.5	+0.9218	0.5964	0.0170	+69	+19
B. A. C. 6550	6.3	+2.33	+ 9.9	−19 57.0	7 9.5	− 1 25.6	−0.3199	0.5964	+0.0171	− 1	−56
d Sagittarii	5.1	2.35	10.5	19 7.1	10 18.7	+ 1 36.2	−1.1011	0.5959	0.0242	−50	−90
B. A. C. 6616	6.4	2.36	10.6	19 24.5	11 54.3	+ 3 8.1	−0.7650	0.5957	0.0278	−25	−90
Mayer 814	6.1	2.41	11.3	19 3.5	17 52.2	+ 8 52.1	−0.9174	0.5945	0.0410	−34	−90
f Sagittarii	5.1	2.44	11.5	19 59.1	21 52.5	−11 16.8	+0.2085	0.5935	0.0497	+31	−24
57 Sagittarii	6.0	+2.46	+11.9	−19 16.8	**30** 0 14.8	− 9 0.1	−0.3853	0.5929	+0.0548	− 1	−61
σ Capricorni	5.5	2.52	13.0	19 24.5	11 21.1	+ 1 40.9	+0.4837	0.5891	0.0779	+52	− 9
π Capricorni	5.1	2.52	13.5	18 31.0	14 38.0	+ 4 50.3	−0.1629	0.5879	0.0845	+14	−46
ρ Capricorni	5.0	2.52	13.7	18 7.3	15 16.6	+ 5 27.5	−0.5131	0.5876	0.0858	− 5	−71
ο Capricorni	5.6	2.53	13.5	18 53.5	15 41.6	+ 5 51.5	+0.3114	0.5874	0.0866	+40	−19
υ Capricorni	5.3	+2.54	+14.0	−18 28.0	19 55.0	+ 9 55.5	+0.2592	0.5856	+0.0947	+39	−21
B. D. −18°,5783	6.4	2.56	14.4	18 22.7	23 48.1	−10 20.2	+0.5526	0.5838	0.1020	+59	− 5
19 Capricorni	5.7	2.57	14.6	18 16.5	**31** 2 5.8	− 8 7.5	+0.6858	0.5828	0.1062	+70	+ 3
Mayer 889	5.7	2.56	15.0	16 23.4	3 19.7	− 6 56.4	−1.1202	0.5822	0.1084	−43	−90
21 Capricorni	6.5	2.57	14.8	17 53.6	4 39.6	− 5 39.3	+0.5719	0.5816	0.1108	+61	− 4
θ Capricorni	4.1	+2.58	+15.0	−17 36.2	6 48.6	− 3 35.1	+0.5155	0.5805	+0.1146	+57	− 7
B. D. −17°,6216	6.1	2.59	15.3	17 43.8	10 42.9	+ 0 10.7	+1.1078	0.5786	0.1212	+72	+33
29 Capricorni	5.5	2.57	15.6	15 33.5	11 0.7	+ 0 27.8	−1.0936	0.5783	0.1217	−38	−90
ι Capricorni	4.3	2.59	15.6	17 13.8	13 46.7	+ 3 7.6	+0.9735	0.5769	0.1262	+73	+22
42 Capricorni	5.1	2.57	16.1	14 27.8	22 10.5	+11 13.4	−0.7696	0.5724	0.1391	−14	−90
44 Capricorni	6.0	+2.58	+16.4	−14 49.5	22 50.0	+11 51.6	−0.3030	0.5720	+0.1401	+12	−55
45 Capricorni	5.8	+2.58	+16.4	−15 10.6	23 14.6	−11 44.7	+0.1174	0.5718	+0.1407	+35	−30

SEPTEMBER.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
μ Capricorni	5.1	+2.60	+16.6	−13 59.4	**1** 3 19.0	− 7 48.9	−0.5260	0.5696	+0.1464	+ 1	−71
ι Aquarii	4.4	2.58	16.8	14 19.3	9 9.4	− 2 10.7	+0.6958	0.5663	0.1541	+75	+ 3
42 Aquarii	5.5	2.58	17.1	13 17.7	13 48.9	+ 2 19.2	+0.3618	0.5637	0.1597	+52	−16
45 Aquarii	6.1	2.58	17.1	13 46.3	14 48.3	+ 3 16.5	+1.0154	0.5632	0.1609	+76	+24
σ Aquarii	4.8	2.57	17.3	11 9.3	20 6.4	+ 8 23.8	−0.8421	0.5602	0.1667	−15	−90
58 Aquarii	6.4	+2.57	+17.3	−11 23.0	20 34.6	+ 8 51.1	−0.5256	0.5599	+0.1672	+ 3	−71
70 Aquarii	6.1	2.56	17.5	11 2.8	**2** 4 19.0	− 7 40.2	+0.4476	0.5557	0.1747	+60	−12
SATURN	. .	. .	. .	9 4.4	10 6.5	− 2 4.1	−0.5944	0.5558	0.1809	+ 1	−77
h^1 Aquarii	5.4	2.54	17.5	8 11.8	12 6.3	− 0 8.3	−1.1560	0.5515	0.1811	−37	−90
ψ^1 Aquarii	4.5	2.54	17.5	9 35.7	17 9.4	+ 4 44.9	+1.2387	0.5490	0.1847	+80	+43
χ Aquarii	5.3	+2.52	+17.4	− 8 14.1	17 38.1	+ 5 12.7	−0.1049	0.5488	+0.1850	+28	−42
B. A. C. 8214	6.5	2.50	17.3	7 58.8	**3** 2 35.0	−10 7.6	+1.3081	0.5444	0.1901	+82	+54
27 Piscium	5.1	2.47	16.7	4 4.4	13 51.3	+ 0 47.4	−0.6609	0.5395	0.1945	− 1	−84
29 Piscium	5.1	2.47	16.6	3 32.8	15 24.0	+ 2 17.2	−0.9203	0.5388	0.1950	−17	−90
4 Ceti	6.3	2.46	16.5	3 4.0	18 18.9	+ 5 6.6	−0.8616	0.5377	0.1957	−12	−90
5 Ceti	6.3	+2.46	+16.5	− 2 58.0	18 32.8	+ 5 20.1	−0.9242	0.5376	+0.1957	−17	90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

SEPTEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° ′	d h m	h m				°	°
B. A. C. 81	6.3	+2.42	+16.1	− 2 44.1	4 2 38.6	−10 49.1	+0.4188	0.5346	+0.1970	+62	−14
14 Ceti	5.4	2.42	15.5	− 1 1.1	8 10.1	− 5 27.8	−0.3286	0.5328	0.1973	+18	−56
26 Ceti	6.0	2.36	14.4	+ 0 52.0	22 28.2	+ 8 24.5	+0.4618	0.5290	0.1959	+65	−11
33 Ceti	6.1	2.34	14.0	1 57.0	5 1 54.5	+11 44.6	−0.0329	0.5282	0.1952	+34	−38
f Piscium	5.3	2.33	13.5	3 7.4	5 36.3	− 8 40.2	−0.5820	0.5274	0.1942	+ 5	−75
Lalande 2632	6.5	+2.30	+13.2	+ 3 3.1	10 15.7	− 4 9.1	+0.3962	0.5266	+0.1927	+60	−14
ν Piscium	4.6	2.28	12.2	5 0.9	17 43.2	+ 3 5.1	−0.3082	0.5257	0.1896	+19	−54
Piazzi i, 249	6.5	2.23	10.6	7 17.3	6 5 45.9	− 9 13.6	−0.5366	0.5247	0.1833	+ 7	−69
64 Ceti	5.8	2.21	10.0	8 8.0	9 7.2	− 5 58.2	−0.8487	0.5245	0.1812	−12	−82
ξ^1 Ceti	4.6	2.21	10.0	8 24.5	9 57.6	− 5 9.4	−0.9982	0.5245	0.1806	−21	−82
25 Arietis	6.5	+2.16	+ 8.8	+ 9 47.0	17 22.8	+ 2 2.8	−1.1836	0.5245	+0.1755	−38	−80
ξ^2 Ceti	4.3	2.15	9.3	8 2.5	17 46.7	+ 2 25.9	+0.7947	0.5245	0.1752	+90	+10
B. F. 310	6.3	2.16	9.0	9 8.9	18 30.3	+ 3 8.2	−0.2911	0.5246	0.1747	+20	−51
85 Ceti	6.3	2.12	8.0	10 20.6	7 1 7.9	+ 9 34.1	−0.4619	0.5249	0.1695	+11	−62
μ Ceti	4.3	2.12	8.1	9 43.2	2 23.2	+10 47.2	+0.4351	0.5249	0.1682	+64	−10
W. B. ii, 1033	5.8	+2.06	+ 6.1	+12 49.6	13 22.1	− 2 33.5	−1.1865	0.5260	+0.1586	−39	−77
B. D +12°,473	6.2	1.98	5.4	12 17.9	22 26.7	+ 6 14.9	+0.7949	0.5273	0.1494	+90	+14
f Tauri	4.3	1.95	4.9	12 37.0	8 1 51.0	+ 9 33.0	+0.9467	0.5278	0.1458	+90	+24
B. D.+14°,657	5.9	1.81	2.4	14 54.7	20 22.0	+ 3 30.3	+0.9150	0.5317	0.1240	+90	+24
B. D.+16°, 569	6.2	1.82	1.4	17 2.2	22 44.5	+ 5 48.4	−1.1439	0.5322	0.1209	−36	−73
48 Tauri	6.3	+1.78	+ 1.9	+15 10.0	9 0 23.5	+ 7 24.4	+1.1225	0.5327	+0.1188	+90	+41
γ Tauri	3.9	1.76	1.6	15 24.1	2 23.4	+ 9 20.6	+1.0973	0.5332	0.1162	+90	+39
δ^1 Tauri	3.9	1.77	0.8	17 19.4	3 54.9	+10 49.3	−0.8526	0.5336	0.1142	−13	−73
63 Tauri	5.7	1.76	1.0	16 33.5	4 10.2	+11 4.1	+0.0218	0.5336	0.1138	+37	−26
δ^2 Tauri	4.9	1.77	0.8	17 13.6	4 29.6	+11 22.9	−0.6808	0.5337	0.1134	− 3	−71
δ^3 Tauri	4.3	+1.77	+ 0.6	+17 42.8	5 10.5	−11 57.5	−1.1422	0.5339	+0.1125	−37	−72
70 Tauri	6.4	1.74	1.2	15 43.6	5 16.6	−11 51.5	+1.0673	0.5339	0.1123	+90	+37
75 Tauri	5.2	1.72	1.0	16 9.0	6 40.3	−10 30.4	+0.7542	0.5343	0.1104	+90	+16
θ^1 Tauri	4.2	1.72	1.1	15 45.3	6 44.4	−10 26.4	+1.1998	0.5343	0.1103	+90	+50
Bradley 619	4.8	1.72	0.9	15 59.4	7 43.1	− 9 29.5	+1.0461	0.5345	0.1090	+90	+36
B. D. +17°,750	6.2	+1.72	+ 0.2	+17 49.1	9 10.0	− 8 5.3	−0.8207	0.5349	+0.1070	−11	−72
B. A. C. 1406	6.5	1.70	0.7	16 7.6	9 14.4	− 8 1.1	+1.0598	0.5350	0.1069	+90	+37
α Tauri	1.1	1.69	+ 0.4	16 19.3	10 21.7	− 6 55.9	+0.9634	0.5353	0.1053	+90	+30
Mayer 177	6.1	1.67	− 0.7	18 33.9	15 24.9	− 2 2.1	−1.0050	0.5366	0.0981	−24	−71
i Tauri	5.1	1.64	1.0	18 40.8	17 54.5	+ 0 22.8	−0.8921	0.5373	0.0945	−16	−71
Bradley 686	5.7	+1.58	− 0.6	+17 0.4	20 52.5	+ 3 15.2	+1.2329	0.5382	+0.0902	+90	+57
m Tauri	5.0	1.58	1.6	18 31.1	10 1 43.3	+ 7 57.0	−0.0205	0.5396	0.0828	+35	−24
B. A. C. 1639	6.2	1.51	2.6	20 2.1	7 25.8	−10 31.4	−1.2487	0.5412	0.0740	−53	−70
B. A. C. 1651	6.5	1.49	2.6	19 43.1	8 15.3	− 9 43.4	−0.8382	0.5415	0.0726	−13	−70
119 Tauri	4.9	1.42	2.6	18 31.4	13 41.6	− 4 27.5	+0.8528	0.5431	0.0640	+90	+27
120 Tauri	5.6	+1.41	− 2.6	+18 28.4	14 19.5	− 3 50.8	+0.9491	0.5432	+0.0629	+90	+33
Piazzi v, 125	6.1	1.43	3.3	20 24.4	14 20.7	− 3 49.7	−1.1841	0.5433	0.0629	−43	−70
B. D. +19°,1110	6.0	1.32	3.8	19 50.6	23 17.6	+ 4 49.7	−0.0642	0.5458	0.0481	+32	−23
χ^1 Orionis	4.5	1.31	4.0	20 15.5	11 0 14.4	+ 5 44.8	−0.4767	0.5461	0.0465	+ 9	−49
χ^2 Orionis	5.8	1.31	3.8	19 43.8	0 30.4	+ 6 0.3	+0.1166	0.5462	0.0460	+43	−13
χ^3 Orionis	5.1	+1.26	− 4.1	+19 41.5	4 32.2	+ 9 54.2	+0.3312	0.5473	+0.0391	+57	− 1
χ^4 Orionis	4.7	1.26	4.2	20 8.4	4 44.8	+10 6.4	−0.1542	0.5473	0.0388	+27	−27
68 Orionis	5.7	1.21	4.4	19 48.6	8 34.4	−10 11.5	+0.3435	0.5484	0.0322	+58	+ 1
71 Orionis	5.1	1.19	4.4	19 11.3	9 55.1	− 8 53.4	+1.0698	0.5487	0.0298	+90	+46
15 Geminorum	6.5	1.13	5.2	20 50.8	15 56.6	− 3 3.8	−0.6037	0.5503	0.0192	+ 2	−56
16 Geminorum	6.2	+1.13	− 5.1	+20 33.1	16 1.6	− 2 59.0	−0.2793	0.5503	+0.0190	+20	−33
ν Geminorum	4.0	1.12	5.0	20 16.2	16 30.5	− 2 31.0	+0.0378	0.5504	+0.0182	+38	−15
ζ Geminorum	Var.	0.93	6.0	20 42.4	12 8 49.1	−10 44.9	−0.3814	0.5542	−0.0113	+15	−39
Lalande 13849	6.5	0.90	6.3	21 24.6	11 35.0	− 8 4.5	−1.1846	0.5548	0.0164	−44	−69
56 Geminorum	5.2	0.83	6.2	20 37.2	17 2.1	− 2 48.3	−0.4402	0.5558	0.0264	+11	−44
61 Geminorum	5.8	+0.81	− 6.2	+20 26.6	19 19.5	− 0 35.5	−0.3142	0.5562	−0.0306	+18	−36

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

SEPTEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° ′	d h m	h m				°	°
79 Geminorum	6.3	+0.71	-6.5	+20 32.4	**13** 3 39.8	+ 7 27.8	-0.7362	0.5576	-0.0460	- 6	-69
B. A. C. 2605	6.2	0.70	6.2	19 33.9	6 46.9	+10 28.6	+0.1669	0.5581	0.0517	+46	-10
85 Geminorum	5.2	0.66	6.4	20 7.8	8 28.0	-11 53.7	-0.5343	0.5583	0.0548	+ 6	-54
B. D.+20°,1976	6.3	0.64	6.4	20 4.4	10 48.4	- 9 38.0	-0.6042	0.5586	0.0591	+ 2	-60
B. F. 1128	6.1	0.61	6.2	19 6.4	12 37.6	- 7 52.5	+0.3268	0.5587	0.0624	+57	- 3
d^1 Cancri	5.7	+0.52	-6.1	+18 38.0	21 5.9	+ 0 18.5	+0.2411	0.5597	-0.0777	+52	- 9
θ Cancri	5.5	0.49	6.1	18 24.6	**14** 0 50.4	+ 3 55.4	+0.1754	0.5600	0.0844	+47	-13
δ Cancri	4.1	0.43	6.2	18 29.9	6 46.6	+ 9 39.4	-0.4500	0.5604	0.0948	+11	-52
B. A. C. 3029	6.5	0.39	5.8	17 35.3	11 38.3	- 9 38.8	+0.0400	0.5606	0.1032	+39	-22
B.D. +15°,2027	6.4	0.30	5.2	15 46.1	23 23.6	+ 1 42.4	+0.6400	0.5609	0.1226	+84	+ 8
B. A. C. 3209	6.3	+0.27	-5.4	+16 59.4	**15** 1 19.5	+ 3 34.4	-0.8909	0.5609	-0.1257	-16	-73
7 Leonis	6.2	0.25	4.8	14 47.9	6 2.1	+ 8 7.3	+0.8134	0.5610	0.1331	+90	+17
11 Leonis	6.5	0.24	4.8	14 46.3	7 0.4	+ 9 3.6	+0.7114	0.5610	0.1346	+85	+11
ψ Leonis	5.6	0.22	-4.6	+14 27.0	9 35.7	+11 33.7	+0.6942	0.5610	0.1385	+89	+10
				NEW	*MOON.*						
Piazzi xiii, 174	6.4	+0.31	+1.4	- 5 1.5	**19** 22 4.6	- 3 40.0	+0.0183	0.5682	-0.2052	+36	-35
n Virginis	6.5	0.33	1.3	6 22.1	**20** 0 0.2	- 1 48.5	+0.9756	0.5687	0.2043	+84	+20
Lalande 26147	6.5	0.43	2.1	7 6.1	12 58.4	+10 42.2	-0.8865	0.5722	0.1959	-16	-90
ξ^1 Libræ	5.7	0.59	2.2	11 30.9	**21** 4 36.3	+ 1 46.5	+0.5950	0.5769	0.1809	+71	- 4
ξ^2 Libræ	5.7	+0.60	+2.5	-11 1.8	5 37.5	+ 2 45.4	-0.0755	0.5772	-0.1797	+28	-41
17 Libræ	6.4	0.60	2.6	10 46.6	6 14.9	+ 3 21.5	-0.4415	0.5774	0.1790	+ 8	-64
18 Libræ	5.9	0.60	2.5	10 46.0	6 32.3	+ 3 38.3	-0.5043	0.5775	0.1787	+ 5	-69
Mayer 616	5.9	0.72	3.1	12 2.0	17 5.3	-10 11.9	-1.0483	0.5808	0.1653	-31	-90
γ Libræ	4.1	0.80	2.8	14 28.5	21 56.4	- 5 31.6	+0.6190	0.5824	0.1584	+70	- 2
Bradley 1987	6.5	+0.83	+2.9	-14 44.5	**22** 1 13.9	- 2 21.5	+0.3731	0.5834	-0.1534	+51	-16
η Libræ	5.5	0.84	2.8	15 22.4	1 29.9	- 2 6.1	+0.9668	0.5835	0.1530	+75	+20
W. B. xv, 839	6.2	0.86	3.6	13 50.9	4 39.8	+ 0 56.8	-1.0409	0.5845	0.1480	-32	-90
W. B. xv, 910	6.4	0.89	3.6	14 7.3	6 33.9	+ 2 46.6	-1.0449	0.5851	0.1450	-33	-90
B.D.-14°,4314	6.2	0.89	3.5	14 33.2	6 41.3	+ 2 53.7	-0.6294	0.5851	0.1447	- 6	-82
48 Libræ	4.6	+0.90	+3.8	-14 0.4	7 22.5	+ 3 33.4	-1.2775	0.5853	-0.1437	-59	-90
49 Libræ	5.4	0.90	2.8	16 15.4	8 15.4	+ 4 24.3	+0.8571	0.5856	0.1422	+74	+13
φ Ophiuchi	4.4	1.08	4.2	16 24.4	20 52.8	- 7 27.0	-0.6479	0.5890	0.1199	-10	-85
24 Scorpii	5.0	1.14	4.2	17 33.6	**23** 1 6.8	- 3 22.7	+0.0224	0.5899	0.1118	+26	-35
B. A. C. 5700	6.1	1.24	4.2	19 23.4	7 22.2	+ 2 38.3	+1.2075	0.5915	0.0995	+71	+45
B. A. C. 5712	6.5	+1.24	+4.7	-18 6.1	8 28.3	+ 3 41.9	-0.2012	0.5917	-0.0973	+13	-48
29 Ophiuchi	6.4	1.25	4.5	18 44.8	9 19.1	+ 4 30.7	+0.3680	0.5918	0.0956	+45	-16
Piazzi xvi, 297	6.2	1.28	5.2	17 29.0	11 55.1	+ 7 0.8	-1.1485	0.5923	0.0903	-48	-90
B. D.-18°,4516	6.3	1.37	5.6	18 21.4	18 29.9	-10 39.7	-0.8159	0.5933	0.0764	-24	-90
Mayer 722	6.3	1.53	6.6	18 47.0	**24** 7 3.3	+ 1 24.6	-1.1761	0.5944	0.0491	-55	-90
B. A. C. 6081	6.4	+1.57	+6.2	-20 19.9	8 40.1	+ 2 57.6	+0.3163	0.5944	-0.0455	+37	-18
Lalande 33327	6.3	1.62	6.8	19 51.5	13 11.0	+ 7 18.0	-0.3458	0.5944	0.0354	- 1	-58
μ Sagittarii	4.0	1.65	6.5	21 4.9	14 10.3	+ 8 14.9	+0.8627	0.5944	0.0332	+69	+15
15 Sagittarii	5.3	1.65	6.7	20 45.3	14 45.6	+ 8 48.9	+0.5111	0.5944	0.0319	+49	- 7
16 Sagittarii	5.9	1.65	6.8	20 24.9	14 45.9	+ 8 49.1	+0.1654	0.5945	0.0319	+26	-27
21 Sagittarii	5.0	+1.70	+7.1	-20 35.4	18 49.6	-11 16.6	+0.2332	0.5942	-0.0227	+30	-23
Bradley 2332	5.7	1.77	7.3	21 28.4	23 51.4	- 6 26.5	+1.0478	0.5938	0.0114	+69	+30
B. A. C. 6347	5.9	1.77	7.4	21 7.7	**25** 0 15.6	- 6 3.3	+0.6910	0.5937	0.0105	+65	+ 4
B.D.-21°,5131	6.3	1.80	7.7	21 5.7	2 50.4	- 3 34.5	+0.6388	0.5934	0.0047	+59	0
29 Sagittarii	5.3	1.82	8.2	20 25.8	4 36.4	- 1 52.5	-0.0442	0.5931	-0.0006	+13	-39
33 Sagittarii	5.8	+1.85	+7.9	-21 28.4	6 20.2	- 0 12.8	+1.0223	0.5929	+0.0032	+69	+27
ζ^1 Sagittarii	5.1	1.86	8.3	20 46.6	7 41.7	+ 1 5.6	+0.3192	0.5927	0.0062	+34	-18
ξ^2 Sagittarii	3.7	1.89	8.1	21 13.7	7 50.6	+ 1 14.1	+0.7805	0.5926	0.0066	+69	+ 9
Lalande 35497	6.1	1.87	9.0	19 22.8	10 1.8	+ 3 20.2	-1.0874	0.5923	0.0115	-50	-90
B.D.-19°,5275	6.4	1.87	9.1	19 14.2	10 3.2	+ 3 21.7	-1.2332	0.5923	0.0115	-64	-90
Bradley 2402	5.4	+1.90	+9.2	-19 26.1	12 8.3	+ 5 21.9	-1.0018	0.5918	+0.0162	-42	-90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

SEPTEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y'	x'	y'	N.	S.
		s	"	° ′	d h m	h m				°	°
π Sagittarii	3.0	+1.90	+ 8.6	−21 10.3	25 12 42.8	+ 5 55.1	+0.7817	0.5917	+0.0174	+69	+ 9
B. A. C. 6550	6.3	1.91	9.1	19 57.0	12 44.8	+ 5 57.0	−0.4661	0.5917	0.0175	− 9	−68
d Sagittarii	5.1	1.93	9.6	19 7.1	15 56.4	+ 9 1.1	−1.2500	0.5909	0.0246	−66	−90
B. A. C. 6616	6.4	1.96	9.7	19 24.5	17 33.2	+10 34.4	−0.9113	0.5905	0.0281	−35	−90
Mayer 814	6.1	2.02	10.4	19 3.5	23 36.2	− 7 36.5	−1.0612	0.5888	0.0413	−45	−90
f Sagittarii	5.1	+2.07	+10.4	−19 59.1	26 3 40.3	− 3 41.6	+0.0745	0.5875	+0.0500	+23	−32
57 Sagittarii	6.0	2.09	10.8	19 16.9	6 4.8	− 1 22.6	−0.5215	0.5866	0.0551	− 9	−72
σ Capricorni	5.5	2.20	11.8	19 24.5	17 23.0	+ 9 30.3	+0.3630	0.5824	0.0780	+44	−16
π Capricorni	5.1	2.22	12.3	18 31.0	20 43.5	−11 16.7	−0.2857	0.5810	0.0845	+ 7	−54
ρ Capricorni	5.0	2.22	12.5	18 7.3	21 22.9	−10 38.7	−0.6380	0.5807	0.0858	−12	−85
ο Capricorni	5.6	+2.24	+12.2	−18 53.5	21 48.4	−10 14.1	+0.1934	0.5805	+0.0866	+34	−25
υ Capricorni	5.3	2.27	12.8	18 28.0	27 2 6.8	− 6 5.3	+0.1450	0.5786	0.0947	+32	−28
B.D.−18°,5783	6.4	2.30	13.1	18 22.8	6 4.5	− 2 16.3	+0.4450	0.5768	0.1019	+52	−12
19 Capricorni	5.7	2.32	13.2	18 16.6	8 25.0	− 0 0.8	+0.5819	0.5756	0.1061	+62	− 4
Mayer 889	5.7	2.31	13.9	16 23.4	9 40.5	+ 1 11.9	−1.2384	0.5751	0.1083	−56	−90
21 Capricorni	6.5	+2.33	+13.5	−17 53.6	11 1.9	+ 2 30.4	+0.4697	0.5744	+0.1106	+54	−10
θ Capricorni	4.1	2.35	13.7	17 36.2	13 13.7	+ 4 37.5	+0.4154	0.5733	0.1144	+51	−13
B.D.−17°,6216	6.1	2.38	14.0	17 43.8	17 12.9	+ 8 28.1	+1.0175	0.5713	0.1210	+72	+25
29 Capricorni	5.5	2.37	14.6	15 33.5	17 31.0	+ 8 45.6	−1.2028	0.5712	0.1215	−50	−90
ι Capricorni	4.3	2.40	14.3	17 13.9	20 20.5	+11 29.0	+0.8859	0.5698	0.1260	+73	+15
42 Capricorni	5.1	+2.43	+15.2	−14 27.8	28 4 55.0	− 4 14.5	−0.8622	0.5654	+0.1388	−20	−90
44 Capricorni	6.0	2.44	15.4	14 49.5	5 35.3	− 3 35.6	−0.3904	0.5650	0.1398	+ 7	−61
45 Capricorni	5.8	2.44	15.3	15 10.6	6 0.4	− 3 11.3	+0.0344	0.5649	0.1404	+31	−35
μ Capricorni	5.1	2.48	15.7	13 59.4	10 9.9	+ 0 49.4	−0.6092	0.5627	0.1461	− 4	−80
ι Aquarii	4.4	2.50	15.8	14 19.3	16 7.5	+ 6 34.9	+0.6316	0.5597	0.1538	+71	− 1
42 Aquarii	5.5	+2.52	+16.3	−13 17.8	20 52.6	+11 10.4	+0.3016	0.5573	+0.1595	+48	−20
45 Aquarii	6.1	2.52	16.2	13 46.3	21 53.2	−11 51.0	+0.9621	0.5568	0.1606	+76	+20
σ Aquarii	4.8	2.54	16.8	11 9.3	29 3 17.5	− 6 37.5	−0.9028	0.5541	0.1665	−20	−90
58 Aquarii	6.4	2.54	16.8	11 23.0	3 46.3	− 6 9.6	−0.5830	0.5539	0.1670	0	−76
70 Aquarii	6.1	2.57	17.0	11 2.8	11 39.3	+ 1 27.8	+0.4107	0.5501	0.1746	+58	−14
SATURN	. .	. .	. .	− 9 49.7	14 2.6	+ 3 46.4	−0.4561	0.5518	+0.1778	+ 8	−65
h^1 Aquarii	5.4	+2.60	+17.4	8 11.8	19 34.6	+ 9 7.7	−1.1920	0.5465	0.1811	−40	−90
ψ^1 Aquarii	4.5	2.62	17.2	9 35.7	30 0 42.7	− 9 54.1	+1.2286	0.5443	0.1848	+80	+42
χ Aquarii	5.3	2.61	17.4	8 14.1	1 11.8	− 9 25.9	−0.1236	0.5441	0.1851	+27	−44
B. A. C. 8214	6.5	2.63	17.2	7 58.8	10 16.5	− 0 38.4	+1.3141	0.5405	0.1905	+82	+54
27 Piscium	5.1	+2.66	+17.3	− 4 4.4	21 41.2	+10 25.0	−0.6464	0.5365	+0.1952	0	−82
29 Piscium	5.1	2.67	17.3	3 32.8	23 14.9	+11 55.7	−0.9043	0.5360	0.1957	−15	−90
OCTOBER.											
4 Ceti	6.3	+2.67	+17.3	− 3 4.0	1 2 11.5	− 9 13.0	−0.8397	0.5350	+0.1965	−11	−90
5 Ceti	6.3	2.67	17.3	2 57.9	2 25.6	− 8 59.3	−0.9022	0.5350	0.1965	−15	−90
B. A. C. 81	6.3	2.67	16.9	2 44.1	10 35.8	− 1 4.1	+0.4619	0.5327	0.1981	+65	−11
14 Ceti	5.4	2.70	16.6	− 1 1.0	16 9.6	+ 4 19.6	−0.2784	0.5313	0.1985	+21	−53
26 Ceti	6.0	2.70	15.8	+ 0 52.1	2 6 32.1	− 5 43.8	+0.5404	0.5285	0.1975	+72	− 7
33 Ceti	6.1	+2.70	+15.5	+ 1 57.0	9 59.0	− 2 23.2	+0.0504	0.5280	+0.1968	+39	−33
f Piscium	5.3	2.71	15.2	3 7.4	13 41.4	+ 1 12.6	−0.4934	0.5275	0.1959	+10	−67
Lalande 2632	6.5	2.71	14.9	3 3.1	18 21.2	+ 5 44.1	+0.4950	0.5270	0.1945	+68	− 9
ν Piscium	4.6	2.71	14.1	5 1.0	3 1 48.9	−11 1.4	−0.1980	0.5264	0.1916	+26	−47
Piazzi i, 249	6.5	2.72	12.7	7 17.3	13 50.8	+ 0 39.2	−0.4069	0.5260	0.1853	+14	−60
64 Ceti	5.8	+2.71	+12.2	+ 8 8.0	17 11.7	+ 3 54.1	−0.7140	0.5261	+0.1833	− 3	−82
ξ^1 Ceti	4.6	2.72	12.2	8 24.6	18 2.0	+ 4 42.9	−0.8623	0.5261	0.1828	−12	−82
25 Arietis	6.5	2.70	11.1	9 47.1	4 1 25.9	+11 53.6	−1.0365	0.5263	0.1776	−24	−80
ξ^2 Ceti	4.3	2.69	11.5	8 2.5	1 49.7	−11 43.3	+0.9434	0.5264	0.1773	+90	+20
B. F. 310	6.3	2.70	11.2	9 9.0	2 33.2	−11 1.1	−0.1419	0.5264	0.1767	+28	−42
85 Ceti	6.3	+2.70	+10.3	+10 20.7	9 9.3	− 4 36.8	−0.3035	0.5268	+0.1715	+20	−51

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

OCTOBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° '	d h m	h m				°	°
μ Ceti	4.3	+2.70	+10.3	+ 9 43.2	4 10 24.4	− 3 23.9	+0.5956	0.5268	+0.1704	+77	− 1
W. B. ii, 1033	5.8	2.68	8.4	12 49.7	21 20.6	+ 7 12.7	−1.0121	0.5280	0.1605	−23	−77
B. D. + 12°, 473	6.2	2.63	7.5	12 17.9	5 6 23.0	− 8 1.2	+0.9807	0.5292	0.1512	+90	+26
f Tauri	4.3	2.62	7.0	12 37.0	9 46.4	− 4 43.9	+1.1363	0.5298	0.1475	+90	+39
Mayer 121	6.4	2.64	6.0	15 7.4	13 13.9	− 1 22.7	−1.1296	0.5303	0.1436	−34	−75
B. D.+14°, 657	5.9	+2.54	+ 4.2	+14 54.8	6 4 13.8	−10 50.1	+1.1231	0.5330	+0.1253	+90	+40
Piazzi iii, 249	6.1	2.58	3.6	17 5.4	4 20.7	−10 43.4	−1.2732	0.5331	0.1251	−54	−73
B. D.+16°, 569	6.2	2.56	3.3	17 2.2	6 36.0	− 8 32.3	−0.9359	0.5335	0.1221	−19	−73
δ^1 Tauri	3.9	2.53	2.6	17 19.4	11 45.8	− 3 32.1	−0.6404	0.5346	0.1152	0	−68
63 Tauri	5.7	2.51	2.8	16 33.5	12 1.0	− 3 17.3	+0.2353	0.5346	0.1149	+51	−14
δ^2 Tauri	4.9	+2.52	+ 2.5	+17 13.6	12 20.4	− 2 58.5	−0.4680	0.5347	+0.1144	+10	−55
δ^3 Tauri	4.3	2.53	2.3	17 42.8	13 1.3	− 2 18.9	−0.9295	0.5348	0.1135	−18	−72
70 Tauri	6.4	2.49	2.9	15 43.6	13 7.4	− 2 12.9	+1.2831	0.5348	0.1134	+90	+63
75 Tauri	5.2	2.48	2.6	16 9.0	14 30.9	− 0 52.0	+0.9706	0.5352	0.1114	+90	+30
Bradley 619	4.8	2.48	2.5	15 59.4	15 33.6	+ 0 8.8	+1.2638	0.5354	0.1100	+90	+59
B. D. +17°, 750	6.2	+2.49	+ 1.8	+17 49.2	17 0.5	+ 1 33.0	−0.6049	0.5357	+0.1079	+ 2	−64
B. A. C. 1406	6.5	2.46	2.3	16 7.6	17 4.8	+ 1 37.1	+1.2786	0.5358	0.1078	+90	+63
α Tauri	1.1	2.46	2.0	16 19.3	18 12.1	+ 2 42.3	+1.1830	0.5360	0.1062	+90	+49
Mayer 177	6.1	2.45	0.8	18 33.9	23 15.3	+ 7 36.1	−0.7859	0.5370	0.0991	− 9	−71
i Tauri	5.1	2.44	0.4	18 40.8	7 1 44.9	+10 1.0	−0.6715	0.5375	0.0952	− 2	−68
B. D.+19°, 811	6.2	+2.43	+ 0.1	+19 20.0	3 29.9	+11 42.7	−1.2310	0.5380	+0.0926	−49	−71
Mayer 198	6.3	2.38	− 0.7	19 40.7	8 38.8	− 7 18.1	−1.1556	0.5391	0.0848	−39	−70
m Tauri	5.0	2.38	0.4	18 31.2	9 34.3	− 6 24.3	+0.2060	0.5393	0.0833	+49	−12
107 Tauri	6.5	2.37	0.9	19 44.3	10 15.1	− 5 44.8	−1.0885	0.5394	0.0823	−32	−70
B. A. C. 1639	6.2	2.33	1.6	20 2.2	15 17.7	− 0 51.8	−1.0235	0.5405	0.0744	−26	−71
B. A. C. 1651	6.5	+2.31	− 1.6	+19 43.2	16 7.3	− 0 3.8	−0.6115	0.5407	+0.0730	+ 2	−62
119 Tauri	4.9	2.24	1.9	18 31.5	21 34.9	+ 5 13.4	+1.0868	0.5418	0.0642	+90	+44
120 Tauri	5.6	2.23	1.9	18 28.4	22 13.0	+ 5 50.2	+1.1838	0.5420	0.0632	+90	+54
Piazzi v, 125	6.1	2.26	2.6	20 24.4	22 14.2	+ 5 51.5	−0.9569	0.5420	0.0631	−21	−70
B. D.+19°, 1110	6.0	2.16	3.4	19 50.6	8 7 14.0	− 9 26.0	+0.1689	0.5438	0.0482	+47	−10
χ^1 Orionis	4.5	+2.14	− 3.7	+20 15.5	8 11.2	− 8 30.7	−0.2451	0.5440	+0.0465	+23	−33
χ^2 Orionis	5.8	2.14	3.5	19 43.8	8 27.3	− 8 15.0	+0.3507	0.5441	0.0461	+59	0
χ^3 Orionis	5.1	2.10	3.9	19 41.5	12 30.8	− 4 19.3	+0.5668	0.5449	0.0392	+77	+12
χ^4 Orionis	4.7	2.10	4.1	20 8.4	12 43.5	− 4 7.1	+0.0793	0.5450	0.0388	+41	−14
68 Orionis	5.7	2.05	4.4	19 48.6	16 34.9	− 0 23.2	+0.5796	0.5457	0.0321	+78	+14
15 Geminorum	6.5	+1.98	− 5.5	+20 50.8	9 0 1.2	+ 6 48.6	−0.3724	0.5470	+0.0191	+15	−39
16 Geminorum	6.2	1.97	5.4	20 33.1	0 6.3	+ 6 53.5	−0.0463	0.5470	0.0189	+34	−19
ν Geminorum	4.0	1.96	5.4	20 16.2	0 35.3	+ 7 21.6	+0.2724	0.5471	+0.0181	+53	− 2
ζ Geminorum	Var.	1.76	6.9	20 42.4	17 5.3	− 0 40.9	−0.1522	0.5497	−0.0115	+28	−25
Lalande 13849	6.5	1.73	7.4	21 24.6	19 53.4	+ 2 1.7	−0.9613	0.5501	0.0166	−22	−69
56 Geminorum	5.2	+1.65	− 7.5	+20 37.2	10 1 25.1	+ 7 22.5	−0.2143	0.5509	−0.0266	+24	−30
61 Geminorum	5.8	1.62	7.7	20 26.6	3 44.6	+ 9 37.4	−0.0885	0.5510	0.0308	+31	−23
79 Geminorum	6.3	1.51	8.2	20 32.4	12 12.6	− 6 11.5	−0.5177	0.5519	0.0461	+ 7	−52
B. A. C. 2605	6.2	1.46	8.0	19 33.8	15 22.7	− 3 7.7	+0.3897	0.5522	0.0518	+62	+ 1
85 Geminorum	5.2	1.44	8.3	20 7.8	17 5.5	− 1 28.3	−0.3175	0.5524	0.0549	+18	−39
B.D. +20°, 1976	6.3	+1.41	− 8.4	+20 4.3	19 28.2	+ 0 49.7	−0.3895	0.5526	−0.0591	+14	−44
B. F. 1128	6.1	1.38	8.2	19 6.3	21 19.1	+ 2 36.9	+0.5469	0.5527	0.0624	+75	+ 9
d^1 Cancri	5.7	1.26	8.4	18 37.9	11 5 56.1	+10 56.6	+0.4539	0.5534	0.0777	+66	+ 2
θ Cancri	5.5	1.21	8.5	18 24.6	9 44.5	− 9 22.7	+0.3845	0.5536	0.0843	+61	− 2
δ Cancri	4.1	1.14	8.8	18 29.9	15 46.9	− 3 32.4	−0.2508	0.5539	0.0947	+22	−38
B. A. C. 2991	6.1	+1.10	− 8.9	+19 10.9	18 34.3	− 0 50.5	−1.2542	0.5540	−0.0994	−52	−71
B. A. C. 3029	6.5	1.07	8.4	17 35.2	20 43.7	+ 1 14.5	+0.2374	0.5541	0.1031	+51	12
B. D.+15°, 2027	6.4	0.92	8.0	15 46.1	12 8 41.0	−11 12.3	+0.8271	0.5546	0.1225	+90	+19
B. A. C. 3209	6.3	0.90	8.3	16 59.4	10 38.8	− 9 18.5	−0.7155	0.5547	0.1256	− 4	73
7 Leonis	6.2	0.85	7.6	14 47.8	15 25.9	− 4 41.0	+0.9921	0.5549	0.1330	+90	+29
8 Leonis	5.9	+0.84	− 8.3	+16 51.4	15 56.6	− 4 11.3	−1.2591	0.5549	−0.1338	−51	−73

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

OCTOBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x′*	*y′*	N	S.
		Δα	Δδ								
		s	″	° ′	d h m	h m				°	°
11 Leonis	6.5	+0.83	− 7.7	+14 46.2	**12** 16 25.1	− 3 43.7	+0.8882	0.5549	−0.1345	+90	+22
ψ Leonis	5.6	0.81	7.5	14 27.0	19 2.9	− 1 11.2	+0.8670	0.5550	0.1385	+90	+20
34 Leonis	6.4	0.67	7.2	13 49.0	**13** 7 53.7	+11 13.8	−0.3671	0.5556	0.1567	+16	−52
37 Leonis	5.5	0.65	7.2	14 11.7	10 12.8	−10 31.7	−1.1290	0.5557	0.1598	−33	−76
l Leonis	5.2	0.52	5.9	11 2.5	**14** 1 11.7	+ 3 56.9	−0.3687	0.5568	0.1781	+16	−55
Piazzi xi, 12	5.8	+0.44	− 5.0	+ 8 34.4	12 32.6	− 9 5.2	+0.0932	0.5579	−0.1898	+42	−29
ν Virginis	4.2	0.35	− 4.0	+ 7 3.3	**15** 3 2.8	+ 4 55.6	−1.1885	0.5600	0.2015	−37	−83
				NEW	*MOON.*						
γ Libræ	4.1	0.53	+ 3.3	−14 28.5	**19** 5 59.7	+ 4 19.4	+0.4508	0.5921	0.1629	+58	−12
Bradley 1987	6.5	+0.55	+ 3.4	−14 44.5	9 10.8	+ 7 23.1	+0.2029	0.5932	−0.1578	+41	−25
η Libræ	5.5	0.55	3.3	15 22.4	9 26.4	+ 7 38.1	+0.7872	0.5933	0.1574	+75	+ 8
W. B. xv, 839	6.2	0.56	3.9	13 50.9	12 30.2	+10 34.9	−1.1958	0.5944	0.1523	−46	−90
θ Libræ	4.4	0.60	3.5	16 27.2	13 20.4	+11 23.1	+1.2553	0.5946	0.1509	+74	+49
W. B. xv, 910	6.4	0.58	4.0	14 7.3	14 20.6	−11 39.0	−1.2027	0.5950	0.1492	−48	−90
B. D.−14°,4314	6.2	+0.59	+ 3.9	−14 33.2	14 27.7	−11 32.2	−0.7936	0.5950	−0.1490	−15	−90
49 Libræ	5.4	0.58	3.3	16 15.3	15 58.8	−10 4.7	+0.6682	0.5956	0.1463	+72	+ 1
χ Ophiuchi	4.9	0.71	4.0	18 14.5	**20** 2 32.6	+ 0 4.3	+1.1951	0.5986	0.1266	+72	+42
φ Ophiuchi	4.4	0.71	4.5	16 24.4	4 11.8	+ 1 3.7	−0.8326	0.5990	0.1234	−20	−90
24 Scorpii	5.0	0.76	4.6	17 33.6	8 17.7	+ 5 36.0	−0.1776	0.6000	0.1151	+16	−47
B. A. C. 5700	6.1	+0.83	+ 4.6	−19 23.4	14 21.3	+11 25.1	+0.9831	0.6011	−0.1024	+71	+22
B. A. C. 5712	6.5	0.83	5.0	18 6.1	15 25.4	−11 33.4	−0.4069	0.6012	0.1001	+ 2	−63
29 Ophiuchi	6.4	0.84	4.9	18 44.8	16 14.5	−10 46.2	+0.1534	0.6014	0.0984	+32	−28
B. D.−18°,4516	6.3	0.93	5.7	18 21.4	**21** 1 8.8	− 2 13.2	−1.0240	0.6023	0.0786	−38	−90
B. A. C. 6081	6.4	1.10	6.2	20 19.9	14 55.4	+11 0.4	+0.0817	0.6021	0.0468	+23	−32
B. A. C. 6125	6.2	+1.14	+ 6.1	−21 27.1	17 42.8	−10 19.0	+1.0851	0.6019	−0.0403	+69	+32
Lalande 33327	6.3	1.14	6.7	19 51.5	19 19.5	− 8 46.1	−0.5758	0.6017	0.0365	−13	−78
μ Sagittarii	4.0	1.16	6.4	21 4.9	20 17.4	− 7 50.6	+0.6186	0.6015	0.0342	+59	− 1
14 Sagittarii	5.6	1.17	6.2	21 44.2	20 28.5	− 7 39.8	+1.2699	0.6015	0.0338	+68	+63
15 Sagittarii	5.3	1.17	6.5	20 45.3	20 51.8	− 7 17.5	+0.2706	0.6015	0.0328	+33	−21
16 Sagittarii	5.9	+1.16	+ 6.6	−20 24.9	20 52.1	− 7 17.2	−0.0714	0.6015	−0.0328	+14	−41
21 Sagittarii	5.0	1.21	6.9	20 35.4	**22** 0 50.1	− 3 28.7	−0.0062	0.6008	0.0235	+17	−37
Bradley 2332	5.7	1.28	7.0	21 28.4	5 45.1	+ 1 14.6	+0.7977	0.5998	0.0119	+69	+10
B. A. C. 6347	5.9	1.27	7.0	21 7.7	6 8.8	+ 1 37.4	+0.4443	0.5997	0.0109	+43	−11
B.D.−21°,5131	6.3	1.31	7.3	21 5.7	8 40.4	+ 4 3.0	+0.3918	0.5991	0.0050	+39	−14
29 Sagittarii	5.3	+1.32	+ 7.7	−20 25.8	10 24.3	+ 5 42.8	−0.2854	0.5986	−0.0010	− 1	−54
33 Sagittarii	5.8	1.35	7.4	21 28.4	12 6.0	+ 7 20.5	+0.7709	0.5981	+0.0030	+69	+ 8
ξ^1 Sagittarii	5.1	1.36	7.7	20 46.6	13 26.1	+ 8 37.4	+0.0737	0.5976	0.0061	+19	−32
ξ^2 Sagittarii	3.7	1.37	7.6	21 13.7	13 34.7	+ 8 45.7	+0.5309	0.5976	0.0064	+49	− 6
ο Sagittarii	3.9	1.41	7.5	21 52.6	16 19.6	+11 24.1	+1.2153	0.5967	0.0128	+68	+49
Bradley 2402	5.4	+1.40	+ 8.5	−19 26.1	17 47.9	−11 11.1	−1.2376	0.5962	+0.0162	−65	−90
π Sagittarii	3.0	1.42	7.9	21 10.3	18 21.7	−10 38.6	+0.5313	0.5960	0.0175	+49	− 6
B. A. C. 6550	6.3	1.41	8.4	19 57.0	18 23.8	−10 36.6	−0.7064	0.5960	0.0176	−23	−82
B. A. C. 6561	6.4	1.44	7.8	21 48.8	19 25.7	− 9 37.1	+1.2019	0.5956	0.0200	+68	+46
B. A. C. 6616	6.4	1.46	8.9	19 24.5	23 7.6	− 6 3.8	−1.1496	0.5943	0.0283	−54	−90
B. A. C. 6671	6.1	+1.52	+ 8.4	−21 30.3	**23** 2 49.4	− 2 30.6	+1.1035	0.5927	+0.0366	+68	+34
f Sagittarii	5.1	1.58	9.3	19 59.1	9 6.7	+ 3 32.1	−0.1714	0.5898	0.0504	+10	−47
57 Sagittarii	6.0	1.61	9.7	19 16.9	11 29.7	+ 5 49.6	−0.7641	0.5887	0.0555	−23	−90
σ Capricorni	5.5	1.74	10.4	19 24.6	22 42.5	− 7 23.0	+0.1186	0.5828	0.0786	+29	−30
π Capricorni	5.1	1.77	10.9	18 31.0	**24** 2 2.0	− 4 10.9	−0.5269	0.5810	0.0851	− 6	−73
ρ Capricorni	5.0	+1.77	+11.1	−18 7.3	2 41.2	− 3 33.1	−0.8780	0.5806	+0.0863	−27	−90
ο Capricorni	5.6	1.78	10.8	18 53.5	3 6.6	− 3 8.6	−0.0488	0.5804	0.0872	+20	−39
υ Capricorni	5.3	1.82	11.2	18 28.0	7 24.2	+ 0 59.5	−0.0951	0.5781	0.0953	+18	−42
B.D.−18°, 5783	6.4	1.87	11.5	18 22.8	11 21.5	+ 4 48.2	+0.2064	0.5756	0.1025	+36	−25
19 Capricorni	5.7	1.89	11.6	18 16.6	13 42.0	+ 7 3.6	+0.3447	0.5742	0.1066	+45	−17
21 Capricorni	6.5	+1.92	+11.9	−17 53.7	16 19.0	+ 9 34.9	+0.2344	0.5727	+0.1112	+39	−23

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

OCTOBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	″	° ′	d h m	h m				°	°
θ Capricorni	4.1	+1.94	+12.0	−17 36.2	**24** 18 30.9	+11 42.0	+0.1817	0.5713	+0.1149	+36	−26
B.D −17°,6216	6.1	1.98	12.2	17 43.8	22 30.7	− 8 26.7	+0.7869	0.5689	0.1214	+72	+ 9
31 Capricorni	6.3	2.00	12.2	17 51.2	23 53.4	− 7 6.9	+1.0841	0.5681	0.1236	+72	+30
ι Capricorni	4.3	2.01	12.5	17 13.9	**25** 1 39.0	− 5 25.0	+0.6581	0.5670	0.1264	+70	0
42 Capricorni	5.1	2.08	13.5	14 27.8	10 16.3	+ 2 54.2	−1.0837	0.5618	0.1392	−36	−90
44 Capricorni	6.0	+2.09	+13.7	−14 49.6	10 56.9	+ 3 33.4	−0.6105	0.5615	+0.1401	− 5	−80
45 Capricorni	5.8	2.09	13.5	15 10.6	11 22.2	+ 3 57.9	−0.1847	0.5612	0.1407	+19	−48
μ Capricorni	5.1	2.14	14.0	13 59.4	15 33.5	+ 8 0.6	−0.8250	0.5587	0.1464	−17	−90
ι Aquarii	4.4	2.19	14.0	14 19.3	21 34.5	−10 10.7	+0.4258	0.5553	0.1540	+56	−13
39 Aquarii	6.2	2.21	14.0	14 39.2	**26** 0 20.2	− 7 30.5	+1.2046	0.5537	0.1573	+75	+41
42 Aquarii	5.5	+2.22	+14.5	−13 17.8	2 22.6	− 5 32.2	+0.1010	0.5526	+0.1596	+37	−31
45 Aquarii	6.1	2.24	14.4	13 46.3	3 23.8	− 4 33.0	+0.7653	0.5520	0.1608	+76	+ 6
Bradley 2961	6.2	2.28	14.5	13 23.6	8 33.0	+ 0 26.0	+1.2107	0.5492	0.1663	+77	+41
σ Aquarii	4.8	2.28	15.2	11 9.3	8 51.9	+ 0 44.3	−1.0987	0.5491	0.1666	−34	−90
58 Aquarii	6.4	2.28	15.1	11 23.0	9 21.1	+ 1 12.5	−0.7768	0.5488	0.1671	−11	−90
70 Aquarii	6.1	+2.34	+15.3	−11 2.9	17 20.3	+ 8 56.1	+0.2330	0.5448	+0.1747	+46	−24
SATURN	. .	. .	. .	10 16.5	17 25.0	+ 9 0.7	−0.5721	0.5461	0.1752	+ 2	−75
ψ^1 Aquarii	4.5	2.46	15.7	9 35.7	**27** 6 35.0	− 2 14.3	+1.0780	0.5387	0.1849	+80	+27
χ Aquarii	5.3	2.44	16.0	8 14.1	7 4.6	− 1 45.6	−0.2801	0.5385	0.1852	+19	−53
B. A. C. 8214	6.5	2.51	15.9	7 58.8	16 17.7	+ 7 10.3	+1.1830	0.5349	0.1906	+82	+36
Mayer 1012	6.3	+2.55	+16.0	− 6 53.9	22 47.2	−10 32.3	+1.2748	0.5327	+0.1936	+83	+47
27 Piscium	5.1	2.59	16.4	4 4.4	**28** 3 53.1	− 5 35.7	−0.7643	0.5311	0.1955	− 6	−90
29 Piscium	5.1	2.61	16.5	3 32.8	5 28.3	− 4 3.4	−1.0202	0.5306	0.1960	−23	−90
4 Ceti	6.3	2.63	16.5	3 4.0	8 27.7	− 1 9.4	−0.9489	0.5298	0.1968	−18	−90
5 Ceti	6.3	2.63	16.5	2 58.0	8 41.9	− 0 55.6	−1.0112	0.5297	0.1969	−22	−90
B. A. C. 81	6.3	+2.67	+16.1	− 2 44.1	16 59.5	+ 7 7.1	+0.3791	0.5277	+0.1986	+59	−16
14 Ceti	5.4	2.72	16.2	− 1 1.0	22 38.3	−11 24.3	−0.3524	0.5266	0.1992	+17	−58
26 Ceti	6.0	2.81	15.5	+ 0 52.0	**29** 13 12.4	+ 2 44.1	+0.5053	0.5246	0.1985	+69	− 9
33 Ceti	6.1	2.82	15.4	1 57.0	16 41.9	+ 6 7.3	+0.0216	0.5240	0.1978	+38	−35
f Piscium	5.3	2.85	15.2	3 7.4	20 26.9	+ 9 45.8	−0.5159	0.5241	0.1971	+ 9	−70
Lalande 2632	6.5	+2.87	+14.8	+ 3 3.1	**30** 1 9.8	− 9 39.7	+0.4887	0.5240	+0.1958	+68	−10
ν Piscium	4.6	2.92	14.3	5 1.0	8 42.0	− 2 20.8	−0.1890	0.5237	0.1931	+26	−47
Piazzi i, 249	6.5	2.98	13.3	7 17.3	20 49.9	+ 9 25.8	−0.3689	0.5241	0.1871	+17	−57
64 Ceti	5.8	2.99	12.9	8 8.0	**31** 0 12.0	−11 18.0	−0.6688	0.5244	0.1851	0	−80
ξ^1 Ceti	4.6	3.00	12.9	8 24.6	1 2.7	−10 28.8	−0.8156	0.5244	0.1846	− 9	−82
25 Arietis	6.5	+3.02	+11.9	+ 9 47.1	8 29.2	− 3 15.4	−0.9721	0.5252	+0.1796	−19	−80
ξ^2 Ceti	4.3	3.01	12.0	8 2.5	8 53.1	− 2 52.2	+1.0147	0.5252	0.1793	+90	+24
B. F. 310	6.3	3.03	11.9	9 9.0	9 36.8	− 2 9.8	−0.0722	0.5253	0.1788	+33	−38
85 Ceti	6.3	3.06	11.1	10 20.7	16 14.6	+ 4 16.2	−0.2186	0.5262	0.1736	+25	−46
μ Ceti	4.3	3.07	10.9	9 43.2	17 30.0	+ 5 29.4	+0.6859	0.5263	0.1726	+88	+ 4

NOVEMBER.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
W. B. ii, 1033	5.8	+3.11	+ 9.4	+12 49.7	**1** 4 27.9	− 7 52.4	−0.9010	0.5280	+0.1627	−15	−77
B. D.+12°, 473	6.2	3.10	8.3	12 17.9	13 30.9	+ 0 54.4	+1.1159	0.5297	0.1535	+90	+36
f Tauri	4.3	+3.10	+ 7.8	+12 37.0	16 54.4	+ 4 11.8	+1.2789	0.5304	+0.1498	+90	+55
Mayer 121	6.4	3.16	7.1	15 7.5	20 21.9	+ 7 32.9	−0.9842	0.5311	0.1459	−21	−75
B. D. +14°, 657	5.9	3.12	4.9	14 54.8	**2** 11 21.1	− 1 55.2	+1.3021	0.5343	0.1275	+90	+66
Piazzi iii, 249	6.1	3.16	4.6	17 5.4	11 28.0	− 1 48.6	−1.0982	0.5343	0.1273	−31	−73
B. D. +16°, 569	6.2	3.15	4.3	17 2.2	13 43.1	+ 0 22.4	−0.7562	0.5347	0.1244	− 6	−73
δ^1 Tauri	3.9	+3.15	+ 3.4	+17 19.4	18 52.4	+ 5 22.1	−0.4508	0.5359	+0.1174	+12	−54
63 Tauri	5.7	3.13	3.5	16 33.6	19 7.6	+ 5 36.8	+0.4270	0.5360	0.1170	+64	− 4
δ^2 Tauri	4.9	3.14	3.3	17 13.7	19 27.0	+ 5 55.7	−0.2771	0.5360	0.1166	+21	−43
δ^3 Tauri	4.3	3.15	3.2	17 42.8	20 7.8	+ 6 35.2	−0.7383	0.5362	0.1156	− 5	−71
75 Tauri	5.2	3.11	3.2	16 9.0	21 37.2	+ 8 1.9	+1.1681	0.5365	0.1135	+90	+46
B. D.+17°, 750	6.2	+3.13	+ 2.6	+17 49.2	**3** 0 6.6	+10 26.6	−0.4062	0.5370	+0.1100	+14	−50

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	Y	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° '	d h m	h m				°	°
Mayer 177	6.1	+3.12	+ 1.4	+18 33.9	**3** 6 20.8	− 7 30.8	−0.5773	0.5383	+0.1009	+ 4	−61
i Tauri	5.1	3.12	1.0	18 40.8	8 50.3	− 5 5.9	−0.4586	0.5388	0.0971	+11	−52
B.D.+19°,811	6.2	3.10	+ 0.7	19 20.0	10 35.1	− 3 24.5	−1.0166	0.5392	0.0945	−25	−71
Mayer 198	6.3	3.09	− 0.2	19 40.7	15 43.6	+ 1 34.4	−0.9335	0.5402	0.0865	−19	−70
m Tauri	5.0	3.10	0.2	18 31.2	16 39.1	+ 2 28.1	+0.4328	0.5404	0.0851	+65	0
107 Tauri	6.5	+3.09	− 0.5	+19 44.3	17 19.9	+ 3 7.6	−0.8638	0.5406	+0.0840	−14	−70
B.A.C. 1639	6.2	3.06	1.3	20 2.2	22 22.2	+ 8 0.4	−0.7917	0.5415	0.0760	− 9	−70
B.A.C. 1651	6.5	3.04	1.4	19 43.2	23 11.8	+ 8 48.4	−0.3775	0.5417	0.0746	+15	−44
Piazzi v, 125	6.1	3.02	2.5	20 24.4	**4** 5 18.6	− 9 16.5	−0.7160	0.5428	0.0646	− 5	−69
B. D.+19°,1110	6.0	2.94	3.7	19 50.6	14 18.9	− 0 33.5	+0.4246	0.5442	0.0494	+65	+ 3
χ^1 Orionis	4.5	+2.93	− 4.0	+20 15.5	15 16.2	+ 0 21.9	+0.0101	0.5444	+0.0478	+37	−19
χ^2 Orionis	5.8	2.93	3.8	19 43.8	15 32.4	+ 0 37.7	+0.6084	0.5444	0.0473	+82	+13
χ^3 Orionis	5.1	2.89	4.4	19 41.5	19 36.3	+ 4 33.7	+0.8301	0.5450	0.0403	+90	+28
χ^4 Orionis	4.7	2.90	4.6	20 8.4	19 49.0	+ 4 46.0	+0.3408	0.5450	0.0399	+58	0
68 Orionis	5.7	2.86	5.0	19 48.6	23 41.1	+ 8 30.6	+0.8475	0.5455	0.0332	+90	+30
15 Geminorum	6.5	+2.80	− 6.4	+20 50.8	**5** 7 9.1	− 8 15.8	−0.1017	0.5463	+0.0200	+31	−22
16 Geminorum	6.2	2.80	6.3	20 33.1	7 14.2	− 8 10.9	+0.2261	0.5463	0.0199	+51	− 5
ν Geminorum	4.0	2.79	6.3	20 16.2	7 43.4	− 7 42.7	+0.5470	0.5464	+0.0190	+76	+13
d Geminorum	5.2	2.71	8.2	21 52.2	18 22.9	+ 2 36.0	−1.1219	0.5473	0.0000	−36	−68
ζ Geminorum	Var.	2.62	8.5	20 42.4	**6** 0 19.9	+ 8 21.4	+0.1330	0.5476	−0.0107	+45	− 8
Lalande 13849	6.5	+2.60	− 9.0	+21 24.5	3 9.5	+11 5.4	−0.6798	0.5477	−0.0158	− 2	−63
56 Geminorum	5.2	2.52	9.4	20 37.1	8 44.5	− 7 30.5	+0.0752	0.5480	0.0258	+41	−13
B. A. C. 2455	6.4	2.51	10.0	21 43.3	11 2.3	− 5 17.2	−1.2028	0.5480	0.0300	−46	−68
61 Geminorum	5.8	2.49	9.7	20 26.6	11 5.5	− 5 14.1	+0.2032	0.5480	0.0301	+49	− 7
63 Geminorum	5.3	2.50	10.1	21 38.1	11 27.0	− 4 53.3	−1.1206	0.5480	0.0307	−36	−68
79 Geminorum	6.3	+2.38	−10.6	+20 32.4	19 39.8	+ 3 3.3	−0.2262	0.5481	−0.0454	+24	−31
B.A.C. 2605	6.2	2.33	10.5	19 33.8	22 52.6	+ 6 9.9	+0.6900	0.5481	0.0511	+86	+18
85 Geminorum	5.2	2.31	10.9	20 7.8	**7** 0 36.9	+ 7 50.8	−0.0228	0.5481	0.0542	+35	−21
B.D.+20°, 1976	6.3	2.28	11.0	20 4.3	3 1.8	+10 10.9	−0.0950	0.5481	0.0584	+31	−26
B.F. 1128	6.1	2.25	10.9	19 6.3	4 54.5	+11 59.9	+0.8502	0.5480	0.0617	+90	+27
d^1 Cancri	5.7	+2.12	−11.4	+18 37.9	13 40.3	− 3 31.5	+0.7577	0.5478	−0.0769	+90	+20
θ Cancri	5.5	2.07	11.7	18 24.5	17 33.0	+ 0 13.6	+0.6875	0.5477	0.0835	+87	+14
ε Cancri	6.3	2.03	12.4	19 52.5	21 41.8	+ 4 14.3	−1.2669	0.5476	0.0905	−56	−70
δ Cancri	4.1	1.99	12.2	18 29.8	23 42.7	+ 6 11.2	+0.0450	0.5475	0.0938	+39	−22
B. A. C. 2991	6.1	1.96	12.4	19 10.8	**8** 2 33.6	+ 8 56.5	−0.9700	0.5474	0.0985	−21	−71
B. A. C. 3029	6.5	+1.92	−12.0	+17 35.2	4 45.8	+11 4.4	+0.5374	0.5473	−0.1021	+74	+ 4
B.D.+15°,2027	6.4	1.74	11.9	15 46.0	16 59.7	− 1 5.7	+1.1291	0.5469	0.1214	+90	+41
B. A. C. 3209	6.3	1.72	12.3	16 59.3	19 0.3	+ 0 50.9	−0.4324	0.5469	0.1244	+13	−53
7 Leonis	6.2	1.64	11.7	14 47.8	23 54.6	+ 5 35.6	+1.2922	0.5468	0.1318	+90	+61
8 Leonis	5.9	1.64	12.4	16 51.4	**9** 0 26.1	+ 6 6.1	−0.9860	0.5468	0.1325	−22	−73
11 Leonis	6.5	+1.63	−11.8	+14 46.1	0 55.4	+ 6 34.5	+1.1864	0.5467	−0.1332	+90	+46
ψ Leonis	5.6	1.60	11.7	14 26.9	3 37.2	+ 9 11.0	+1.1630	0.5467	0.1372	+90	+43
34 Leonis	6.4	1.43	11.6	13 49.0	16 48.6	− 2 3.4	−0.0978	0.5467	0.1553	+31	−35
37 Leonis	5.5	1.39	11.7	14 11.6	19 11.5	+ 0 14.8	−0.8714	0.5468	0.1584	−13	−76
l Leonis	5.2	1.20	10.5	11 2.4	**10** 10 35.1	− 8 51.7	−0.1218	0.5477	0.1766	+30	−40
Piazzi xi, 12	5.8	+1.08	− 9.4	+ 8 34.4	22 14.3	+ 2 24.6	+0.3265	0.5491	−0.1885	+56	−17
ν Virginis	4.2	0.93	8.4	7 3.2	**11** 13 6.4	− 7 12.8	−0.9957	0.5518	0.2008	−20	−83
b Virginis	5.2	0.89	7.1	4 10.6	19 38.3	− 0 53.9	+0.6369	0.5534	0.2051	+81	− 1
c Virginis	5.1	0.78	6.5	3 50.1	**12** 5 2.0	+ 8 10.9	−0.9627	0.5561	0.2099	−18	−86
Piazzi xii, 142	5.9	0.74	5.6	+ 2 22.2	13 14.0	− 7 53.7	−1.2033	0.5589	0.2128	−37	−88
80 Virginis	5.6	+0.63	− 2.2	− 4 55.1	**13** 14 37.9	− 7 22.7	+0.6932	0.5570	−0.2129	+84	+ 1
				NEW	*MOON.*						
B. A. C. 6081	6.4	0.83	+ 6.2	20 19.9	**17** 23 44.2	− 2 22.9	−0.1138	0.6137	0.0496	+13	−44
B. A. C. 6125	6.2	0.86	6.1	21 27.1	**18** 2 25.4	+ 0 11.5	+0.8678	0.6136	0.0429	+69	+14
Lalande 33327	6.3	+0.86	+ 6.6	−19 51.5	3 58.5	+ 1 40.8	−0.7679	0.6134	−0.0390	−24	−90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		s	"	° '	d h m	h m				°	°
μ Sagittarii	4.0	+0.88	+ 6.4	−21 4.9	18 4 54.3	+ 2 34.2	+0.4046	0.6133	−0.0366	+42	−14
14 Sagittarii	5.6	0.88	6.2	21 44.2	5 5.0	+ 2 44.5	+1.0447	0.6133	0.0362	+65	+28
15 Sagittarii	5.3	0.88	6.5	20 45.3	5 27.4	+ 3 6.0	+0.0615	0.6132	0.0352	+21	−33
16 Sagittarii	5.9	0.88	6.5	20 24.9	5 27.7	+ 3 6.3	−0.2748	0.6132	0.0352	+ 3	−54
21 Sagittarii	5.0	0.91	6.7	20 35.4	9 16.9	+ 6 45.9	−0.2173	0.6126	0.0256	+ 5	−50
Bradley 2332	5.7	+0.95	+ 6.8	−21 28.4	14 0.9	+11 18.2	+0.5650	0.6116	−0.0137	+52	− 5
B. A. C. 6347	5.9	0.95	6.8	21 7.7	14 23.7	+11 40.1	+0.2170	0.6115	0.0130	+28	−24
B.D.−21°, 5131	6.3	0.97	7.1	21 5.7	16 49.6	−10 0.0	+0.1615	0.6108	0.0066	+24	−27
29 Sagittarii	5.3	0.98	7.4	20 25.8	18 29.6	− 8 24.2	−0.5069	0.6104	−0.0024	−13	−70
33 Sagittarii	5.8	1.00	7.2	21 28.4	20 7.6	− 6 50.2	+0.5291	0.6097	+0.0016	+48	− 7
ξ¹ Sagittarii	5.1	+1.01	+ 7.4	−20 46.7	21 24.6	− 5 36.4	−0.1582	0.6093	+0.0049	+ 7	−46
ξ² Sagittarii	3.7	1.02	7.3	21 13.7	21 33.0	− 5 28.3	+0.2910	0.6093	0.0052	+32	−20
ο Sagittarii	3.9	1.05	7.3	21 52.7	**19** 0 11.7	− 2 56.1	+0.9601	0.6082	0.0117	+68	+22
π Sagittarii	3.0	1.05	7.6	21 10.3	2 9.4	− 1 3.1	+0.2849	0.6074	0.0166	+33	−21
B. A. C. 6550	6.3	1.05	7.9	19 57.0	2 11.4	− 1 1.2	−0.9322	0.6074	0.0167	−37	−90
B. A. C. 6561	6.4	+1.07	+ 7.5	−21 48.8	3 11.0	− 0 4.0	+0.9430	0.6071	+0.0191	+68	+20
50 Sagittarii	5.5	1.12	7.7	21 57.7	8 31.5	+ 5 3.5	+1.2306	0.6046	0.0320	+68	+51
B. A. C. 6671	6.1	1.14	7.9	21 30.4	10 18.6	+ 6 46.3	+0.8370	0.6037	0.0362	+68	+13
f Sagittarii	5.1	1.18	8.6	19 59.1	16 22.5	−11 24.4	−0.4242	0.6004	0.0504	− 4	−65
57 Sagittarii	6.0	1.21	8.9	19 16.9	18 40.7	− 9 11.7	−1.0102	0.5990	0.0556	−39	−90
σ Capricorni	5.5	+1.32	+ 9.4	−19 24.6	**20** 5 31.1	+ 1 13.2	−0.1519	0.5921	+0.0793	+14	−46
π Capricorni	5.1	1.35	9.8	18 31.0	8 44.5	+ 4 19.1	−0.7906	0.5898	0.0859	−21	−90
ρ Capricorni	5.0	1.36	9.9	18 7.3	9 22.4	+ 4 55.6	−1.1372	0.5894	0.0872	−47	−90
ο Capricorni	5.6	1.37	9.6	18 53.5	9 47.1	+ 5 19.4	−0.3203	0.5891	0.0880	+ 6	−57
υ Capricorni	5.3	1.41	10.0	18 28.0	13 56.9	+ 9 19.7	−0.3690	0.5861	0.0963	+ 4	−60
B. D.−18°,5783	6.4	+1.45	+10.1	−18 22.8	17 47.5	−10 58.4	−0.0740	0.5834	+0.1036	+19	−41
19 Capricorni	5.7	1.47	10.2	18 16.6	20 4.1	− 8 46.9	+0.0612	0.5817	0.1078	+28	−33
21 Capricorni	6.5	1.50	10.4	17 53.7	22 36.8	− 6 19.9	−0.0489	0.5798	0.1124	+23	−40
θ Capricorni	4.1	1.53	10.5	17 36.2	**21** 0 45.4	− 4 16.1	−0.1019	0.5781	0.1162	+20	−43
B.D.−17°,6216	6.1	1.56	10.6	17 43.9	4 39.1	− 0 30.9	+0.4947	0.5752	0.1228	+57	− 9
31 Capricorni	6.3	+1.58	+10.6	−17 51.2	5 59.8	+ 0 46.9	+0.7881	0.5742	+0.1250	+72	+ 8
ι Capricorni	4.3	1.60	10.8	17 13.9	7 43.0	+ 2 26.4	+0.3668	0.5729	0.1278	+48	−16
γ Capricorni	3.7	1.69	11.0	17 5.0	15 28.3	+ 9 55.0	+1.2559	0.5671	0.1397	+73	+49
44 Capricorni	6.0	1.69	11.9	14 49.6	16 48.9	+11 12.8	−0.8897	0.5661	0.1416	−21	−90
45 Capricorni	5.8	1.69	11.7	15 10.6	17 13.7	+11 36.7	−0.4683	0.5658	0.1422	+ 4	−67
δ Capricorni	2.9	+1.73	+11.0	−16 33.1	18 32.3	−11 7.5	+1.1418	0.5648	+0.1440	+73	+35
μ Capricorni	5.1	1.76	12.2	13 59.5	21 20.4	− 8 25.2	−1.1027	0.5628	0.1479	−37	−90
ι Aquarii	4.4	1.80	12.1	14 19.4	**22** 3 15.3	− 2 42.5	+0.1372	0.5585	0.1554	+38	−29
39 Aquarii	6.2	1.83	12.0	14 39.2	5 58.6	− 0 4.7	+0.9105	0.5566	0.1587	+75	+10
42 Aquarii	5.5	1.85	12.5	13 17.8	7 59.2	+ 1 51.6	−0.1835	0.5552	0.1610	+21	−48
45 Aquarii	6.1	+1.87	+12.3	−13 46.3	8 59.7	+ 2 50.3	+0.4759	0.5545	+0.1621	+60	−11
50 Aquarii	5.9	1.89	12.2	14 0.2	11 30.0	+ 5 15.6	+1.1277	0.5528	0.1649	+76	+32
Bradley 2961	6.2	1.92	12.4	13 23.6	14 5.0	+ 7 45.4	+0.9207	0.5511	0.1676	+77	+16
58 Aquarii	6.4	1.92	13.1	11 23.0	14 52.6	+ 8 31.4	−1.0527	0.5505	0.1684	−30	−90
SATURN	. .	. . .	. .	10 15.5	22 36.2	− 8 0.2	−0.9092	0.5450	0.1753	−18	−90
70 Aquarii	6.1	+2.01	+13.2	−11 2.9	22 47.3	− 7 49.5	−0.0451	0.5455	+0.1759	+30	−39
ψ¹ Aquarii	4.5	2.16	13.5	9 35.8	**23** 11 57.7	+ 4 55.7	+0.8070	0.5380	0.1859	+80	+ 8
χ Aquarii	5.3	2.14	13.9	8 14.1	12 27.2	+ 5 24.2	−0.5446	0.5377	0.1862	+ 5	73
ψ² Aquarii	4.6	2.15	13.4	9 41.5	12 57.7	+ 5 53.7	+1.0905	0.5375	0.1865	+80	+25
B. A. C. 8214	6.5	2.24	13.8	7 58.9	21 39.6	− 9 40.5	+0.9245	0.5332	0.1914	+82	+16
Mayer 1012	6.3	+2.30	+13.9	− 6 53.0	**24** 4 9.5	− 3 22.6	+1.0250	0.5305	+0.1943	+83	+22
27 Piscium	5.1	2.36	14.6	4 4.4	9 10.2	+ 1 34.8	−1.0038	0.5285	0.1961	−22	−90
29 Piscium	5.1	2.38	14.7	3 32.8	10 51.7	+ 3 7.5	−1.2572	0.5279	0.1966	−44	−90
4 Ceti	6.3	2.41	14.7	3 4.1	13 51.0	+ 6 2.2	−1.1816	0.5268	0.1974	−36	90
5 Ceti	6.3	2.41	14.7	2 58.0	14 6.2	+ 6 16.1	−1.2436	0.5268	0.1975	−41	90
B. A. C. 81	6.3	+2.49	+14.3	− 2 44.1	22 26.6	− 9 38.4	+0.1596	0.5244	+0.1991	+40	−28

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER

The Star's Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	At Conjunction in R. A. Washington Mean Time.	Hour Angle, *H*	Y'	*x'*	*y'*	Limiting Parallels. N.	Limiting Parallels. S.
		s	"	° '	d h m	h m				°	°
14 Ceti	5.4	+2.56	+14.5	− 1 1.1	**25** 4 7.7	− 4 7.5	−0.5622	0.5230	+0.1996	+ 6	−74
26 Ceti	6.0	2.70	14.0	+ 0 52.0	18 49.3	+10 8.3	+0.3245	0.5205	0.1990	+56	−19
33 Ceti	6.1	2.74	14.0	1 57.0	22 20.8	−10 26.4	−0.1530	0.5202	0.1985	+28	−44
f Piscium	5.3	2.78	14.0	3 7.4	**26** 2 7.9	− 6 45.8	−0.6834	0.5199	0.1977	0	−85
Lalande 2632	6.5	2.82	13.6	3 3.1	6 53.7	− 2 8.4	+0.3334	0.5198	0.1964	+57	−18
ν Piscium	4.6	+2.90	+13.4	+ 5 1.0	14 30.5	+ 5 15.2	−0.3288	0.5197	+0.1938	+19	−56
Piazzi i, 249	6.5	3.02	12.6	7 17.3	**27** 2 45.9	− 6 50.7	−0.4810	0.5204	0.1881	+11	−65
64 Ceti	5.8	3.05	12.2	8 8.0	6 10.1	− 3 32.5	−0.7736	0.5207	0.1862	− 6	−82
ξ^1 Ceti	4.6	3.07	12.3	8 24.6	7 1.2	− 2 42.9	−0.9188	0.5210	0.1857	−15	−82
25 Arietis	6.5	3.12	11.5	9 47.1	14 31.9	+ 4 34.7	−1.0578	0.5218	0.1808	−25	−80
ξ^2 Ceti	4.3	+3.12	+11.3	+ 8 2.5	14 56.1	+ 4 58.2	+0.9351	0.5219	+0.1806	+90	+18
B. F. 310	6.3	3.14	11.4	9 9.0	15 40.2	+ 5 41.0	−0.1528	0.5220	0.1800	+28	−43
85 Ceti	6.3	3.20	10.7	10 20.7	22 21.5	−11 49.5	−0.2834	0.5231	0.1751	+21	−50
μ Ceti	4.3	3.21	10.5	9 43.2	23 37.5	−10 35.7	+0.6263	0.5234	0.1740	+81	0
W. B. ii, 1033	5.8	3.31	9.4	12 49.7	**28** 10 40.4	+ 0 7.6	−0.9375	0.5257	0.1644	−17	−77
B. D. +12°, 473	6.2	+3.35	+ 7.9	+12 17.9	19 46.9	+ 8 57.8	+1.1057	0.5279	+0.1554	+90	+35
f Tauri	4.3	3.37	7.5	12 37.0	23 11.4	−11 43.8	+1.2773	0.5287	0.1517	+90	+55
Mayer 121	6.4	3.44	7.2	15 7.5	**29** 2 39.9	− 8 21.6	−0.9819	0.5295	0.1479	−21	−75
Piazzi iii, 249	6.1	3.53	4.8	17 5.4	17 49.1	+ 6 20.0	−1.0602	0.5338	0.1295	−28	−73
B. D. +16°, 569	6.2	3.54	4.4	17 2.2	20 4.5	+ 8 31.3	−0.7124	0.5344	0.1266	− 3	−73
δ^1 Tauri	3.9	+3.56	+ 3.5	+17 19.4	**30** 1 14.3	−10 28.5	−0.3948	0.5359	+0.1196	+14	−50
63 Tauri	5.7	3.54	3.4	16 33.6	1 29.5	−10 13.8	+0.4848	0.5360	0.1193	+69	− 1
δ^2 Tauri	4.9	3.56	3.4	17 13.7	1 48.9	− 9 54.9	−0.2195	0.5360	0.1188	+25	−39
δ^3 Tauri	4.3	3.57	3.3	17 42.9	2 29.8	− 9 15.3	−0.6798	0.5362	0.1179	− 1	−71
75 Tauri	5.2	3.53	3.1	16 9.0	3 59.3	− 7 48.5	+1.2324	0.5366	0.1158	+90	+53
B. D. +17°, 750	6.2	+3.57	+ 2.6	+17 49.2	6 28.8	− 5 23.7	−0.3384	0.5372	+0.1123	+18	−46
Mayer 177	6.1	3.60	1.5	18 33.9	12 43.0	+ 0 38.8	−0.4960	0.5389	0.1032	+ 9	−55
i Tauri	5.1	3.61	1.0	18 40.8	15 12.4	+ 3 3.6	−0.3717	0.5396	0.0994	+16	−47
B. D. +19°, 811	6.2	3.62	+ 0.8	19 20.0	16 57.2	+ 4 45.1	−0.9267	0.5400	0.0968	−18	−71
Mayer 198	6.3	3.62	− 0.2	19 40.7	22 5.3	+ 9 43.4	−0.8325	0.5413	0.0889	−12	−70
m Tauri	5.1	+3.63	− 0.3	+18 31.2	23 0.7	+10 37.1	+0.5372	0.5415	+0.0874	+74	+ 6
107 Tauri	6.5	3.62	0.5	19 44.3	23 41.5	+11 16.6	−0.7595	0.5417	0.0863	− 7	−70
DECEMBER.											
B. A. C. 1639	6.2	+3.63	− 1.4	+20 2.2	**1** 4 43.3	− 7 51.0	−0.6770	0.5428	+0.0782	− 2	−67
B. A. C. 1651	6.5	3.62	1.6	19 43.2	5 32.8	− 7 3.2	−0.2605	0.5430	0.0769	+22	−37
Piazzi v, 125	6.1	3.62	2.7	20 24.4	11 38.8	− 1 8.8	−0.5873	0.5443	0.0568	+ 3	−59
ζ Tauri	3.0	3.63	3.2	21 5.1	13 33.1	+ 0 41.8	−1.2166	0.5447	0.0636	−47	−69
B. D. +19°, 1110	6.0	3.58	4.3	19 50.6	20 37.8	+ 7 32.9	+0.5719	0.5459	0.0515	+78	+11
χ^1 Orionis	4.5	+3.58	− 4.6	+20 15.5	21 34.9	+ 8 28.1	+0.1587	0.5462	+0.0498	+46	−11
χ^2 Orionis	5.8	3.57	4.5	19 43.8	21 51.0	+ 8 43.8	+0.7583	0.5462	0.0494	+90	+22
χ^3 Orionis	5.1	3.56	5.2	19 41.5	**2** 1 54.3	−11 20.9	+0.9878	0.5468	0.0423	+90	+38
χ^4 Orionis	4.7	3.57	5.3	20 8.4	2 7.0	−11 8.6	+0.4982	0.5468	0.0419	+71	+ 8
68 Orionis	5.7	3.54	5.9	19 48.6	5 58.4	− 7 24.6	+1.0126	0.5473	0.0351	+90	+41
15 Geminorum	6.5	+3.52	− 7.4	+20 50.7	13 25.2	− 0 12.3	+0.0748	0.5481	+0.0218	+41	−13
16 Geminorum	6.2	3.52	7.3	20 33.1	13 30.3	− 0 7.4	+0.4034	0.5481	0.0216	+63	+ 5
ν Geminorum	4.0	3.51	7.3	20 16.2	13 59.5	+ 0 20.9	+0.7256	0.5481	0.0208	+90	+23
a Geminorum	5.2	3.47	9.4	21 52.2	**3** 0 37.8	+10 38.4	−0.9300	0.5489	+0.0015	−19	−68
NEPTUNE	. .	. .	. .	22 0.0	3 28.9	−10 36.0	−1.0775	0.5501	−0.0037	−32	−68
ζ Geminorum	Var.	+3.40	−10.1	+20 42.4	6 34.3	7 36.7	+0.3374	0.5492	−0.0093	+58	+ 4
Lalande 13849	6.5	3.40	10.7	21 24.5	9 23.9	− 4 52.7	0.4738	0.5490	0.0144	+10	−46
56 Geminorum	5.2	3.33	11.4	20 37.1	14 58.8	+ 0 31.3	+0.2916	0.5490	0.0245	+55	− 1
B. A. C. 2455	6.4	3.33	11.9	21 43.2	17 16.6	+ 2 44.6	−0.9881	0.5489	0.0287	−24	−68
61 Geminorum	5.8	3.31	11.7	20 26.6	17 19.9	+ 2 47.7	+0.4232	0.5489	0.0288	+65	+ 5
63 Geminorum	5.3	+3.32	−12.1	+21 38.1	17 41.4	+ 3 8.6	−0.9050	0.5489	−0.0294	−17	−68

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, H	Y	x′	y′	N.	S.
		s	″	° ′	d h m	h m				°	°
μ Sagittarii	4.0	+0.88	+ 6.4	-21 4.9	18 4 54.3	+ 2 34.2	+0.4046	0.6133	-0.0366	+42	-14
14 Sagittarii	5.6	0.88	6.2	21 44.2	5 5.0	+ 2 44.5	+1.0447	0.6133	0.0362	+63	+28
15 Sagittarii	5.3	0.88	6.5	20 45.3	5 27.4	+ 3 6.0	+0.0615	0.6132	0.0352	+21	-33
16 Sagittarii	5.9	0.88	6.5	20 24.9	5 27.7	+ 3 6.3	-0.2748	0.6132	0.0352	+ 3	-54
21 Sagittarii	5.0	0.91	6.7	20 35.4	9 16.9	+ 6 45.9	-0.2173	0.6126	0.0256	+ 5	-50
Bradley 2332	5.7	+0.95	+ 6.8	-21 28.4	14 0.9	+11 18.2	+0.5650	0.6116	-0.0137	+52	- 5
B. A. C. 6347	5.9	0.95	6.8	21 7.7	14 23.7	+11 40.1	+0.2170	0.6115	0.0130	+28	-24
B.D.-21°, 5131	6.3	0.97	7.1	21 5.7	16 49.6	-10 0.0	+0.1615	0.6108	0.0066	+24	-27
29 Sagittarii	5.3	0.98	7.4	20 25.8	18 29.6	- 8 24.2	-0.5069	0.6104	-0.0024	-13	-70
33 Sagittarii	5.8	1.00	7.2	21 28.4	20 7.6	- 6 50.2	+0.5291	0.6097	+0.0016	+48	- 7
ξ¹ Sagittarii	5.1	+1.01	+ 7.4	-20 46.7	21 24.6	- 5 36.4	-0.1582	0.6093	+0.0049	+ 7	-46
ξ² Sagittarii	3.7	1.02	7.3	21 13.7	21 33.0	- 5 28.3	+0.2910	0.6093	0.0052	+32	-20
o Sagittarii	3.9	1.05	7.3	21 52.7	**19** 0 11.7	- 2 56.1	+0.9601	0.6082	0.0117	+68	+22
π Sagittarii	3.0	1.05	7.6	21 10.3	2 9.4	- 1 3.1	+0.2849	0.6074	0.0166	+33	-21
B. A. C. 6550	6.3	1.05	7.9	19 57.0	2 11.4	- 1 1.2	-0.9322	0.6074	0.0167	-37	-90
B. A. C. 6561	6.4	+1.07	+ 7.5	-21 48.8	3 11.0	- 0 4.0	+0.9430	0.6071	+0.0191	+68	+20
50 Sagittarii	5.5	1.12	7.7	21 57.7	8 31.5	+ 5 3.5	+1.2306	0.6046	0.0320	+68	+51
B. A. C. 6671	6.1	1.14	7.9	21 30.4	10 18.6	+ 6 46.3	+0.8370	0.6037	0.0362	+68	+13
f Sagittarii	5.1	1.18	8.6	19 59.1	16 22.5	-11 24.4	-0.4242	0.6004	0.0504	- 4	-65
57 Sagittarii	6.0	1.21	8.9	19 16.9	18 40.7	- 9 11.7	-1.0102	0.5990	0.0556	-39	-90
σ Capricorni	5.5	+1.32	+ 9.4	-19 24.6	**20** 5 31.1	+ 1 13.2	-0.1519	0.5921	+0.0793	+14	-46
π Capricorni	5.1	1.35	9.8	18 31.0	8 44.5	+ 4 19.1	-0.7906	0.5898	0.0859	-21	-90
ρ Capricorni	5.0	1.36	9.9	18 7.3	9 22.4	+ 4 55.6	-1.1372	0.5894	0.0872	-47	-90
o Capricorni	5.6	1.37	9.6	18 53.5	9 47.1	+ 5 19.4	-0.3203	0.5891	0.0880	+ 6	-57
υ Capricorni	5.3	1.41	10.0	18 28.0	13 56.9	+ 9 19.7	-0.3690	0.5861	0.0963	+ 4	-60
B. D.-18°,5783	6.4	+1.45	+10.1	-18 22.8	17 47.5	-10 58.4	-0.0740	0.5834	+0.1036	+19	-41
19 Capricorni	5.7	1.47	10.2	18 16.6	20 4.1	- 8 46.9	+0.0612	0.5817	0.1078	+28	-33
21 Capricorni	6.5	1.50	10.4	17 53.7	22 36.8	- 6 19.9	-0.0489	0.5798	0.1124	+23	-40
θ Capricorni	4.1	1.53	10.5	17 36.2	**21** 0 45.4	- 4 16.1	-0.1019	0.5781	0.1162	+20	-43
B.D.-17°,6216	6.1	1.56	10.6	17 43.9	4 39.1	- 0 30.9	+0.4947	0.5752	0.1228	+57	- 9
31 Capricorni	6.3	+1.58	+10.6	-17 51.2	5 59.8	+ 0 46.9	+0.7881	0.5742	+0.1250	+72	+ 8
ι Capricorni	4.3	1.60	10.8	17 13.9	7 43.0	+ 2 26.4	+0.3668	0.5729	0.1278	+48	-16
γ Capricorni	3.7	1.69	11.0	17 5.0	15 28.3	+ 9 55.0	+1.2559	0.5671	0.1397	+73	+49
44 Capricorni	6.0	1.69	11.9	14 49.6	16 48.9	+11 12.8	-0.8897	0.5661	0.1416	-21	-90
45 Capricorni	5.8	1.69	11.7	15 10.6	17 13.7	+11 36.7	-0.4683	0.5658	0.1422	+ 4	-67
δ Capricorni	2.9	+1.73	+11.0	-16 33.1	18 32.3	-11 7.5	+1.1418	0.5648	+0.1440	+73	+35
μ Capricorni	5.1	1.76	12.2	13 59.5	21 20.4	- 8 25.2	-1.1027	0.5628	0.1479	-37	-90
ι Aquarii	4.4	1.80	12.1	14 19.4	**22** 3 15.3	- 2 42.5	+0.1372	0.5585	0.1554	+38	-29
39 Aquarii	6.2	1.83	12.0	14 39.2	5 58.6	- 0 4.7	+0.9105	0.5566	0.1587	+75	+16
42 Aquarii	5.5	1.85	12.5	13 17.8	7 59.2	+ 1 51.6	-0.1835	0.5552	0.1610	+21	-48
45 Aquarii	6.1	+1.87	+12.3	-13 46.3	8 59.7	+ 2 50.3	+0.4759	0.5545	+0.1621	+60	-11
50 Aquarii	5.9	1.89	12.2	14 0.2	11 30.0	+ 5 15.6	+1.1277	0.5528	0.1649	+76	+32
Bradley 2961	6.2	1.92	12.4	13 23.6	14 5.0	+ 7 45.4	+0.9207	0.5511	0.1676	+77	+16
58 Aquarii	6.4	1.92	13.1	11 23.0	14 52.6	+ 8 31.4	-1.0527	0.5505	0.1684	-30	-90
SATURN	. .	. .	. .	10 15.5	22 36.2	- 8 0.2	-0.9092	0.5450	0.1753	-18	-90
70 Aquarii	6.1	+2.01	+13.2	-11 2.9	22 47.3	- 7 49.5	-0.0451	0.5455	+0.1759	+30	-39
ψ¹ Aquarii	4.5	2.16	13.5	9 35.8	**23** 11 57.7	+ 4 55.7	+0.8079	0.5380	0.1859	+80	+ 8
χ Aquarii	5.3	2.14	13.9	8 14.1	12 27.2	+ 5 24.2	-0.5446	0.5377	0.1862	+ 5	-73
ψ² Aquarii	4.6	2.15	13.4	9 41.5	12 57.7	+ 5 53.7	+1.0965	0.5375	0.1865	+80	+28
B. A. C. 8214	6.5	2.24	13.8	7 58.9	21 39.6	- 9 40.5	+0.9245	0.5332	0.1914	+82	+16
Mayer 1012	6.3	+2.30	+13.9	- 6 53.9	**24** 4 9.5	- 3 22.6	+1.0250	0.5305	+0.1943	+83	+22
27 Piscium	5.1	2.36	14.6	4 4.4	9 16.2	+ 1 34.8	-1.0038	0.5285	0.1961	-22	-90
29 Piscium	5.1	2.38	14.7	3 32.8	10 51.7	+ 3 7.5	-1.2572	0.5279	0.1966	-44	90
4 Ceti	6.3	2.41	14.7	3 4.1	13 51.9	+ 6 2.2	-1.1816	0.5268	0.1974	-36	-90
5 Ceti	6.3	2.41	14.7	2 58.0	14 6.2	+ 6 16.1	-1.2436	0.5268	0.1975	-41	-90
B. A. C. 81	6.3	+2.49	+14.3	- 2 44.1	22 26.6	- 9 38.4	+0.1596	0.5244	+0.1991	+46	28

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0. Δα	Red'ns from 1906.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x′*	*y′*	N.	S.
		s	″	° ′	d h m	h m				°	°
14 Ceti	5.4	+2.56	+14.5	− 1 1.1	**25** 4 7.7	− 4 7.5	−0.5622	0.5230	+0.1996	+ 6	−74
26 Ceti	6.0	2.70	14.0	+ 0 52.0	18 49.3	+10 8.3	+0.3245	0.5205	0.1990	+56	−19
33 Ceti	6.1	2.74	14.0	1 57.0	22 20.8	−10 26.4	−0.1530	0.5202	0.1985	+28	−44
f Piscium	5.3	2.78	14.0	3 7.4	**26** 2 7.9	− 6 45.8	−0.6834	0.5199	0.1977	0	−85
Lalande 2632	6.5	2.82	13.6	3 3.1	6 53.7	− 2 8.4	+0.3334	0.5198	0.1964	+57	−18
ν Piscium	4.6	+2.90	+13.4	+ 5 1.0	14 30.5	+ 5 15.2	−0.3288	0.5197	+0.1938	+19	−56
Piazzi i, 249	6.5	3.02	12.6	7 17.3	**27** 2 45.9	− 6 50.7	−0.4810	0.5204	0.1881	+11	−65
64 Ceti	5.8	3.05	12.2	8 8.0	6 10.1	− 3 32.5	−0.7736	0.5207	0.1862	− 6	−82
ξ^1 Ceti	4.6	3.07	12.3	8 24.6	7 1.2	− 2 42.9	−0.9188	0.5210	0.1857	−15	−82
25 Arietis	6.5	3.12	11.5	9 47.1	14 31.9	+ 4 34.7	−1.0578	0.5218	0.1808	−25	−80
ξ^2 Ceti	4.3	+3.12	+11.3	+ 8 2.5	14 56.1	+ 4 58.2	+0.9351	0.5219	+0.1806	+90	+18
B. F. 310	6.3	3.14	11.4	9 9.0	15 40.2	+ 5 41.0	−0.1528	0.5220	0.1800	+28	−43
85 Ceti	6.3	3.20	10.7	10 20.7	22 21.5	−11 49.5	−0.2834	0.5231	0.1751	+21	−50
μ Ceti	4.3	3.21	10.5	9 43.2	23 37.5	−10 35.7	+0.6263	0.5234	0.1740	+81	0
W. B. ii, 1033	5.8	3.31	9.4	12 49.7	**28** 10 40.4	+ 0 7.6	−0.9375	0.5257	0.1644	−17	−77
B. D. +12°, 473	6.2	+3.35	+ 7.9	+12 17.9	19 46.9	+ 8 57.8	+1.1057	0.5279	+0.1554	+90	+35
f Tauri	4.3	3.37	7.5	12 37.0	23 11.4	−11 43.8	+1.2773	0.5287	0.1517	+90	+55
Mayer 121	6.4	3.44	7.2	15 7.5	**29** 2 39.9	− 8 21.6	−0.9819	0.5295	0.1479	−21	−75
Piazzi iii, 249	6.1	3.53	4.8	17 5.4	17 49.1	+ 6 20.0	−1.0602	0.5338	0.1295	−28	−73
B. D. +16°, 569	6.2	3.54	4.4	17 2.2	20 4.5	+ 8 31.3	−0.7124	0.5344	0.1266	− 3	−73
δ^1 Tauri	3.9	+3.56	+ 3.5	+17 19.4	**30** 1 14.3	−10 28.5	−0.3948	0.5359	+0.1196	+14	−50
63 Tauri	5.7	3.54	3.4	16 33.6	1 29.5	−10 13.8	+0.4848	0.5360	0.1193	+69	− 1
δ^2 Tauri	4.9	3.56	3.4	17 13.7	1 48.9	− 9 54.9	−0.2195	0.5360	0.1188	+25	−39
δ^3 Tauri	4.3	3.57	3.3	17 42.9	2 29.8	− 9 15.3	−0.6798	0.5362	0.1179	− 1	−71
75 Tauri	5.2	3.53	3.1	16 9.0	3 59.3	− 7 48.5	+1.2324	0.5366	0.1158	+90	+53
B. D. +17°, 750	6.2	+3.57	+ 2.6	+17 49.2	6 28.8	− 5 23.7	−0.3384	0.5372	+0.1123	+18	−46
Mayer 177	6.1	3.60	1.5	18 33.9	12 43.0	+ 0 38.8	−0.4960	0.5389	0.1032	+ 9	−55
i Tauri	5.1	3.61	1.0	18 40.8	15 12.4	+ 3 3.6	−0.3717	0.5396	0.0994	+16	−47
B. D. +19°, 811	6.2	3.62	+ 0.8	19 20.0	16 57.2	+ 4 45.1	−0.9267	0.5400	0.0968	−18	−71
Mayer 198	6.3	3.62	− 0.2	19 40.7	22 5.3	+ 9 43.4	−0.8325	0.5413	0.0889	−12	−70
m Tauri	5.1	+3.63	− 0.3	+18 31.2	23 0.7	+10 37.1	+0.5372	0.5415	+0.0874	+74	+ 6
107 Tauri	6.5	3.62	0.5	19 44.3	23 41.5	+11 16.6	−0.7595	0.5417	0.0863	− 7	−70

DECEMBER.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x′*	*y′*	N.	S.
B. A. C. 1639	6.2	+3.63	− 1.4	+20 2.2	**1** 4 43.3	− 7 51.0	−0.6770	0.5428	+0.0782	− 2	−67
B. A. C. 1651	6.5	3.62	1.6	19 43.2	5 32.8	− 7 3.2	−0.2605	0.5430	0.0769	+22	−37
Piazzi v, 125	6.1	3.62	2.7	20 24.4	11 38.8	− 1 8.8	−0.5873	0.5443	0.0568	+ 3	−59
ζ Tauri	3.0	3.63	3.2	21 5.1	13 33.1	+ 0 41.8	−1.2166	0.5447	0.0636	−47	−69
B. D. +19°, 1110	6.0	3.58	4.3	19 50.6	20 37.8	+ 7 32.9	+0.5719	0.5459	0.0515	+78	+11
χ^1 Orionis	4.5	+3.58	− 4.6	+20 15.5	21 34.9	+ 8 28.1	+0.1587	0.5462	+0.0498	+46	−11
χ^2 Orionis	5.8	3.57	4.5	19 43.8	21 51.0	+ 8 43.8	+0.7583	0.5462	0.0494	+90	+22
χ^3 Orionis	5.1	3.56	5.2	19 41.5	**2** 1 54.3	−11 20.9	+0.9878	0.5468	0.0423	+90	+38
χ^4 Orionis	4.7	3.57	5.3	20 8.4	2 7.0	−11 8.6	+0.4982	0.5468	0.0419	+71	+ 8
68 Orionis	5.7	3.54	5.9	19 48.6	5 58.4	− 7 24.6	+1.0126	0.5473	0.0351	+90	+41
15 Geminorum	6.5	+3.52	− 7.4	+20 50.7	13 25.2	− 0 12.3	+0.0748	0.5481	+0.0218	+41	−13
16 Geminorum	6.2	3.52	7.3	20 33.1	13 30.3	− 0 7.4	+0.4034	0.5481	0.0216	+63	+ 5
ν Geminorum	4.0	3.51	7.3	20 16.2	13 59.5	+ 0 20.9	+0.7256	0.5481	0.0208	+90	+23
d Geminorum	5.2	3.47	9.4	21 52.2	**3** 0 37.8	+10 38.4	−0.9300	0.5489	+0.0015	−19	−68
NEPTUNE	. .	. .	. .	22 0.0	3 28.9	−10 36.0	−1.0775	0.5501	−0.0037	−32	−68
ζ Geminorum	Var.	+3.40	−10.1	+20 42.4	6 34.3	− 7 36.7	+0.3374	0.5492	−0.0093	+58	+ 4
Lalande 13849	6.5	3.40	10.7	21 24.5	9 23.9	− 4 52.7	−0.4738	0.5490	0.0144	+10	−46
56 Geminorum	5.2	3.33	11.4	20 37.1	14 58.8	+ 0 31.3	+0.2916	0.5490	0.0245	+55	− 1
B. A. C. 2455	6.4	3.33	11.9	21 43.2	17 16.6	+ 2 44.6	−0.9881	0.5489	0.0287	−24	−68
61 Geminorum	5.8	3.31	11.7	20 26.6	17 19.9	+ 2 47.7	+0.4232	0.5489	0.0288	+65	+ 5
63 Geminorum	5.3	+3.32	−12.1	+21 38.1	17 41.4	+ 3 8.6	−0.9050	0.5489	−0.0294	−17	−68

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

DECEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x′*	*y′*	N.	S.
		Δα	Δδ								
		s	″	° ′	d h m	h m				°	°
79 Geminorum	6.3	+3.22	−12.9	+20 32.3	4 1 55.0	+11 6.0	+0.0032	0.5485	−0.0442	+37	−19
B. A. C. 2605	6.2	3.18	13.1	19 33.8	5 8.3	− 9 47.0	+0.9276	0.5483	0.0499	+90	+33
85 Geminorum	5.2	3.17	13.5	20 7.7	6 52.9	− 8 5.8	+0.2135	0.5481	0.0530	+50	− 9
B.D.+20°, 1976	6.3	3.14	13.7	20 4.2	9 18.4	− 5 45.1	+0.1439	0.5480	0.0573	+45	−12
B.F. 1128	6.1	3.10	13.7	19 6.3	11 11.6	− 3 55.6	+1.0962	0.5477	0.0606	+90	+45
*d*¹ Cancri	5.7	+3.00	−14.6	+18 37.8	20 0.5	+ 4 36.2	+1.0133	0.5468	−0.0758	+90	+37
θ Cancri	5.5	2.95	15.0	18 24.5	23 54.9	+ 8 22.9	+0.9468	0.5463	0.0824	+90	+31
B. A. C. 2919	6.5	2.92	15.8	19 59.9	**5** 4 3.3	−11 36.7	−1.1511	0.5458	0.0893	−38	−70
ε Cancri	6.3	2.92	15.8	19 52.4	4 5.9	−11 34.2	−1.0179	0.5458	0.0893	−25	−70
δ Cancri	4.1	2.88	15.8	18 29.7	6 7.8	− 9 36.3	+0.3055	0.5456	0.0927	+56	− 8
B. A. C. 2991	6.1	+2.85	−16.0	+19 10.7	9 0.5	− 6 49.2	−0.7151	0.5451	−0.0973	− 4	−71
B. A. C. 3029	6.5	2.81	15.8	17 35.1	11 14.2	− 4 39.8	+0.8059	0.5448	0.1009	+90	+20
B. A. C. 3209	6.3	2.62	16.6	16 59.2	**6** 1 40.5	+ 9 18.7	−0.1634	0.5429	0.1231	+28	−36
8 Leonis	5.9	2.55	16.9	16 51.3	7 11.8	− 9 20.6	−0.7207	0.5421	0.1311	− 4	−73
34 Leonis	6.4	2.32	16.6	13 48.9	23 54.7	+ 6 50.3	+0.1808	0.5403	0.1534	+47	−21
37 Leonis	5.5	+2.28	−16.8	+14 11.6	**7** 2 21.0	+ 9 11.9	−0.6027	0.5401	−0.1564	+ 3	−69
l Leonis	5.2	2.08	15.8	11 2.3	18 9.2	+ 0 30.0	+0.1539	0.5394	0.1743	+46	−25
Piazzi xi, 12	5.8	1.93	14.9	8 34.3	**8** 6 9.8	−11 52.2	+0.6032	0.5398	0.1859	+78	− 2
ν Virginis	4.2	1.74	14.0	7 3.1	21 31.8	+ 3 0.4	−0.7521	0.5415	0.1979	− 5	−79
b Virginis	5.2	1.68	12.6	4 10.5	**9** 4 17.4	+ 9 33.0	+0.8995	0.5427	0.2022	+90	+14
c Virginis	5.1	+1.55	−12.0	+ 3 50.0	14 1.5	− 5 1.7	−0.7379	0.5451	−0.2070	− 4	−84
Piazzi xii, 142	5.9	1.48	11.0	+ 2 22.1	22 31.3	+ 3 11.5	−0.9944	0.5478	0.2100	−21	−88
80 Virginis	5.6	1.30	6.6	− 4 55.2	**11** 0 48.3	+ 4 35.7	+0.8824	0.5596	0.2109	+85	+12
Piazzi xiii, 174	6.4	1.26	6.3	5 1.6	4 34.1	+ 8 13.9	+0.1982	0.5616	0.2099	+48	−26
n Virginis	6.5	1.26	5.8	6 22.2	6 31.2	+10 6.9	+1.1425	0.5629	0.2092	+84	+32
Lalande 26147	6.5	+1.15	− 4.4	− 7 6.2	19 33.2	− 1 18.6	−0.8124	0.5709	−0.2027	−10	−90
ξ¹ Libræ	5.7	1.08	1.9	11 30.9	**12** 11 0.1	−10 25.5	+0.5437	0.5815	0.1896	+67	− 7
ξ² Libræ	5.7	1.07	1.8	11 1.9	12 0.0	− 9 27.8	−0.1256	0.5821	0.1886	+26	−44
17 Libræ	6.4	1.06	1.8	10 46.7	12 36.6	− 8 52.5	−0.4911	0.5825	0.1879	+ 7	−69
18 Libræ	5.9	1.06	1.9	10 46.0	12 53.6	− 8 36.2	−0.5549	0.5827	0.1876	+ 3	−74
Mayer 616	5.9	+1.00	− 0.5	−12 2.1	23 8.6	+ 1 15.6	−1.1601	0.5900	−0.1751	−39	−90
				NEW	*MOON.*						
f Sagittarii	5.1	+1.03	+ 8.1	−19 59.1	**17** 2 21.7	+ 0 22.9	−0.5697	0.6116	+0.0497	−12	−78
57 Sagittarii	6.0	1.05	8.4	19 16.9	4 35.1	+ 2 30.8	−1.1504	0.6104	0.0551	−52	−90
σ Capricorni	5.5	+1.12	+ 8.8	−19 24.6	15 2.3	−11 27.5	−0.3224	0.6039	+0.0795	+ 4	−57
π Capricorni	5.1	1.14	9.0	18 31.1	18 8.5	− 8 28.8	−0.9554	0.6018	0.0863	−32	−90
o Capricorni	5.6	1.15	8.9	18 53.5	19 8.8	− 7 30.9	−0.4943	0.6011	0.0885	− 4	−70
v Capricorni	5.3	1.17	9.2	18 28.0	23 9.4	− 3 39.8	−0.5482	0.5981	0.0970	− 6	−75
B.D.−18°, 5783	6.4	1.20	9.3	18 22.8	**18** 2 51.3	− 0 6.6	−0.2634	0.5953	0.1046	+10	−53
19 Capricorni	5.7	+1.21	+ 9.3	−18 16.6	5 2.8	+ 1 59.7	−0.1333	0.5936	+0.1089	+17	−44
20 Capricorni	6.2	1.24	9.1	19 23.9	6 58.0	+ 3 50.4	+1.2058	0.5920	0.1126	+71	+44
21 Capricorni	6.5	1.24	9.5	17 53.7	7 29.8	+ 4 21.0	−0.2449	0.5916	0.1136	+12	−52
θ Capricorni	4.1	1.26	9.5	17 36.2	9 33.5	+ 6 20.0	−0.2997	0.5900	0.1175	+10	−55
B. D.−17°, 6216	6.1	1.29	9.6	17 43.9	13 18.4	+ 9 56.3	+0.2822	0.5869	0.1243	+43	−21
30 Capricorni	5.4	+1.30	+ 9.4	−18 22.6	14 28.3	+11 3.6	+1.0801	0.5860	+0.1264	+72	+30
31 Capricorni	6.3	1.30	9.6	17 51.3	14 36.1	+11 11.1	+0.5691	0.5858	0.1260	+62	− 5
ι Capricorni	4.3	1.31	9.8	17 13.9	16 15.4	−11 13.3	+0.1529	0.5845	0.1295	+35	−28
γ Capricorni	3.7	1.39	9.8	17 5.1	23 43.5	− 4 1.9	+1.0190	0.5782	0.1416	+73	+24
44 Capricorni	6.0	1.39	10.5	14 49.6	**19** 1 1.2	− 2 47.1	−1.0920	0.5771	0.1436	−36	−90
45 Capricorni	5.8	+1.39	+10.4	−15 10.7	1 25.1	− 2 24.1	−0.6780	0.5768	+0.1442	− 8	−89
δ Capricorni	2.9	1.42	9.7	16 33.1	2 40.8	− 1 11.2	+0.9040	0.5757	0.1461	+73	+15
μ Capricorni	5.1	1.45	10.7	13 59.5	5 22.9	+ 1 25.1	−1.3059	0.5735	0.1500	−64	−90
ι Aquarii	4.4	1.48	10.5	14 19.4	11 5.3	+ 6 55.2	−0.0912	0.5686	0.1578	+25	−42
39 Aquarii	6.2	1.51	10.4	14 39.2	13 42.9	+ 9 27.3	+0.6676	0.5665	0.1611	+74	0
42 Aquarii	5.5	+1.53	+10.8	−13 17.8	15 39.5	+11 19.8	−0.4104	0.5649	+0.1635	+ 9	−63

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

DECEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x′*	*y′*	N.	S.
		Δα	Δδ								
		s	″	° ′	d h m	h m				°	°
45 Aquarii	6.1	+1.54	+10.7	−13 46.4	**19** 16 37.9	−11 43.9	+0.2380	0.5642	+0.1646	+45	−24
50 Aquarii	5.9	1.56	10.6	14 0.2	19 3.2	− 9 23.6	+0.8781	0.5622	0.1674	+76	+13
Bradley 2961	6.2	1.60	10.7	13 23.6	21 33.2	− 6 58.8	+0.6730	0.5602	0.1701	+75	0
58 Aquarii	6.4	1.60	11.4	11 23.1	22 19.2	− 6 14.3	−1.2706	0.5596	0.1709	−52	−90
70 Aquarii	6.1	1.68	11.4	11 2.9	**20** 5 59.1	+ 1 10.0	−0.2822	0.5538	0.1784	+18	−54
SATURN	. .	. . .	. . .	− 9 45.6	7 46.1	+ 2 53.4	−1.3037	0.5501	+0.1789	−56	−90
74 Aquarii	5.8	+1.69	+11.0	12 6.8	8 16.6	+ 3 22.9	+1.2357	0.5521	0.1804	+78	+43
ψ¹ Aquarii	4.5	1.83	11.7	9 35.8	18 47.3	−10 27.1	+0.5559	0.5446	0.1883	+70	− 7
χ Aquarii	5.3	1.82	11.9	8 14.2	19 16.1	− 9 59.2	−0.7789	0.5444	0.1886	− 9	−90
ψ² Aquarii	4.6	1.82	11.4	9 41.6	19 45.8	− 9 30.5	+0.8406	0.5441	0.1889	+80	+10
B. A. C. 8214	6.5	+1.92	+11.7	− 7 58.9	**21** 4 15.0	− 1 17.6	+0.6716	0.5388	+0.1937	+80	0
Mayer 1012	6.3	1.99	11.8	6 54.0	10 36.6	+ 4 52.0	+0.7727	0.5352	0.1965	+73	+ 6
27 Piscium	5.1	2.06	12.5	4 4.4	15 37.3	+ 9 43.4	−1.2329	0.5327	0.1982	−41	−90
B. A. C. 81	6.3	2.20	12.2	2 44.1	**22** 4 34.7	− 1 42.8	−0.0760	0.5270	0.2009	+32	−41
14 Ceti	5.4	2.29	12.5	− 1 1.1	10 11.5	+ 3 43.8	−0.7884	0.5250	0.2014	− 7	−90
26 Ceti	6.0	+2.46	+12.1	+ 0 52.0	**23** 0 44.7	− 6 8.9	+0.1033	0.5211	+0.2002	+43	−31
33 Ceti	6.1	2.50	12.2	1 56.9	4 14.9	− 2 44.9	−0.3681	0.5204	0.1996	+17	−59
f Piscium	5.3	2.55	12.2	3 7.4	8 0.8	+ 0 54.4	−0.8919	0.5198	0.1987	−13	−87
Lalande 2632	6.5	2.61	11.8	3 3.1	12 45.4	+ 5 30.7	+0.1248	0.5192	0.1974	+44	−29
ν Piscium	4.6	2.71	11.7	5 0.9	20 21.1	−11 6.9	−0.5256	0.5185	0.1946	+ 8	−70
Piazzi i, 249	6.5	+2.86	+11.2	+ 7 17.3	**24** 8 36.4	+ 0 47.2	−0.6621	0.5185	+0.1888	+ 1	−81
64 Ceti	5.8	2.91	10.9	8 8.0	12 0.9	+ 4 5.8	−0.9495	0.5187	0.1868	−17	−82
ξ¹ Ceti	4.6	2.93	11.0	8 24.5	12 52.2	+ 4 55.5	−1.0931	0.5187	0.1863	−28	−82
25 Arietis	6.5	3.01	10.3	9 47.1	20 24.1	−11 45.6	−1.2215	0.5194	0.1814	−40	−80
ξ² Ceti	4.3	3.01	9.9	8 2.5	20 48.3	−11 22.2	+0.7684	0.5195	0.1812	+90	+ 8
B. F. 310	6.3	+3.03	+10.2	+ 9 8.9	21 32.5	−10 39.3	−0.3164	0.5196	+0.1807	+20	−53
85 Ceti	6.3	3.12	9.7	10 20.6	**25** 4 15.4	− 4 8.2	−0.4368	0.5205	0.1757	+13	−61
μ Ceti	4.3	3.14	9.3	9 43.2	5 31.7	− 2 54.1	+0.4739	0.5208	0.1747	+67	− 8
W. B. ii, 1033	5.8	3.29	8.6	12 49.7	16 37.7	+ 7 52.3	−1.0708	0.5230	0.1651	−27	−77
B. D. +12°, 473	6.2	3.35	7.1	12 17.9	**26** 1 47.0	− 7 14.7	+0.9865	0.5252	0.1562	+90	+25
f Tauri	4.3	+3.39	+ 6.7	+12 37.0	5 12.6	− 3 55.1	+1.1638	0.5261	+0.1526	+90	+40
Mayer 121	6.4	3.47	6.7	15 7.5	8 42.3	− 0 31.8	−1.0890	0.5271	0.1489	−29	−75
B. D. +14°, 657	5.9	3.59	4.2	14 54.8	23 48.9	− 9 52.5	+1.2620	0.5316	0.1308	+90	+56
Piazzi iii, 249	6.1	3.64	4.6	17 5.4	23 55.8	− 9 45.9	−1.1416	0.5317	0.1307	−35	−73
B. D. + 16°, 569	6.2	3.66	4.2	17 2.2	**27** 2 11.8	− 7 33.9	−0.7899	0.5324	0.1278	− 8	−73
δ¹ Tauri	3.9	+3.71	+ 3.3	+17 19.4	7 22.8	− 2 32.5	−0.4634	0.5340	+0.1209	+11	−55
63 Tauri	5.7	3.69	3.1	16 33.5	7 38.1	− 2 17.6	+0.4166	0.5340	0.1206	+64	− 5
δ² Tauri	4.9	3.71	3.1	17 13.7	7 57.6	− 1 58.7	−0.2870	0.5342	0.1201	+21	−43
δ³ Tauri	4.3	3.73	3.1	17 42.8	8 38.6	− 1 19.0	−0.7462	0.5344	0.1192	− 5	−72
75 Tauri	5.2	3.69	2.6	16 9.0	10 8.4	+ 0 8.1	+1.1686	0.5349	0.1171	+90	+45
B. D. + 17°, 750	6.2	+3.75	+ 2.5	+17 49.2	12 38.4	+ 2 33.4	−0.3979	0.5357	+0.1136	+14	−50
Mayer 177	6.1	3.81	1.3	18 33.9	18 53.7	+ 8 37.0	−0.5447	0.5377	0.1046	+ 6	−59
i Tauri	5.1	3.82	0.9	18 40.8	21 23.4	+11 2.1	−0.4164	0.5384	0.1009	+13	−50
B. D. + 19°, 811	6.2	3.85	+ 0.8	19 20.0	23 8.4	−11 16.2	−0.9682	0.5390	0.0983	−21	−71
Mayer 198	6.3	3.88	− 0.3	19 40.7	**28** 4 17.0	− 6 17.4	−0.8653	0.5406	0.0904	−14	−70
m Tauri	5.0	+3.89	− 0.6	+18 31.2	5 12.5	− 5 23.6	+0.5056	0.5408	+0.0889	+71	+ 4
107 Tauri	6.5	3.89	0.6	19 44.3	5 53.3	− 4 44.1	−0.7896	0.5410	0.0879	− 9	−70
B. A. C. 1639	6.2	3.92	1.5	20 2.2	10 55.4	+ 0 8.3	−0.6987	0.5425	0.0798	− 3	−69
B. A. C. 1651	6.5	3.92	1.7	19 43.2	11 44.8	+ 0 56.2	−0.2811	0.5427	0.0785	+21	−39
Piazzi v, 125	6.1	3.95	2.9	20 24.4	17 50.7	+ 6 50.5	−0.5978	0.5444	0.0684	+ 3	−60
ζ Tauri	3.0	+3.98	− 3.2	+21 5.1	19 44.9	+ 8 41.0	−1.2233	0.5449	+0.0653	−48	−69
B. D. +19°, 1110	6.0	3.95	4.7	19 50.6	**29** 2 49.0	− 8 28.4	+0.5754	0.5466	0.0532	+78	+11
χ¹ Orionis	4.5	3.96	4.9	20 15.5	3 46.0	− 7 33.3	+0.1640	0.5468	0.0515	+47	−11
χ² Orionis	5.8	3.95	4.9	19 43.8	4 2.0	− 7 17.7	+0.7636	0.5469	0.0510	+90	+22
χ³ Orionis	5.1	3.96	5.7	19 41.5	8 4.7	− 3 23.0	+0.9992	0.5477	0.0439	+90	+39
χ⁴ Orionis	4.7	+3.98	− 5.7	+20 8.4	8 17.4	− 3 10.6	+0.5105	0.5478	+0.0436	+72	+ 9

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

DECEMBER.

THE STAR'S					AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1906.0.		Apparent Declination.	Washington Mean Time.	Hour Angle, *H*	*Y*	*x'*	*y'*	N.	S.
		Δα	Δδ								
		s	"	° '	d h m	h m				°	°
68 Orionis	5.7	+3.97	− 6.5	+19 48.6	29 12 8.1	+ 0 32.6	+1.0303	0.5485	+0.0368	+90	+42
15 Geminorum	6.5	4.00	8.0	20 50.7	19 33 3	+ 7 43.3	+0.1047	0.5498	0.0234	+43	−11
16 Geminorum	6.2	3.99	8.0	20 33.1	19 38.4	+ 7 48.2	+0.4332	0.5498	0.0233	+66	+ 6
ν Geminorum	4.0	3.98	8.1	20 16.2	20 7.4	+ 8 16.3	+0.7558	0.5499	0.0224	+90	+25
d Geminorum	5.2	4.01	10.1	21 52.2	30 6 42.6	− 5 29.4	−0.8822	0.5511	0.0030	−16	−68
NEPTUNE	. .	. .	. .	+22 3.8	8 5.7	− 4 9.0	−1.0944	0.5525	+0.0004	−33	−68
ζ Geminorum	Var.	+3.96	−11.2	20 42.3	12 37.2	+ 0 13.6	+0.3921	0.5513	−0.0079	+62	+ 6
Lalande 13849	6.5	3.98	11.7	21 24.5	15 25.6	+ 2 56.4	−0.4141	0.5516	0.0131	+13	−41
56 Geminorum	5.2	3.93	12.6	20 37.1	20 58.5	+ 8 18.3	+0.3582	0.5517	0.0233	+60	+ 2
B.A.C. 2455	6.4	3.96	13.1	21 43.2	23 15.5	+10 30.9	−0.9171	0.5517	0.0275	−18	−68
61 Geminorum	5.8	+3.92	−13.0	+20 26.5	23 18.7	+10 33.9	+0.4929	0.5517	−0.0276	+70	+ 9
63 Geminorum	5.3	3.95	13.3	21 38.1	23 40.1	+10 54.7	−0.8336	0.5517	0.0282	−12	−68
79 Geminorum	6.3	3.88	14.5	20 32.3	31 7 50.4	− 5 11.1	+0.0848	0.5515	0.0432	+42	−14
B.A.C. 2605	6.2	3.84	14.9	19 33.7	11 2.5	− 2 5.3	+1.0127	0.5513	0.0490	+90	+39
85 Geminorum	5.2	3.84	15.3	20 7.7	12 46.4	− 0 24.8	+0.3013	0.5512	0.0521	+56	− 3
B.D.+20°,1976	6.3	+3.83	−15.6	+20 4.2	15 10.9	+ 1 54.9	+0.2348	0.5510	−0.0563	+51	− 8
B.F. 1128	6.1	+3.80	−15.8	+19 6.2	17 3.4	+ 3 43.7	+1.1891	0.5508	−0.0597	+90	+54

OCCULTATIONS VISIBLE AT WASHINGTON DURING THE YEAR 1906.

Date.	The Star's		Immersion.				Emersion.				Duration of Occultation.
			Washington.		Angle from—		Washington.		Angle from—		
	Name.	Mag.	Sidereal Time.	Mean Time.	North Point.	Vertex.	Sidereal Time.	Mean Time.	North Point.	Vertex.	
			h m	h m	°	°	h m	h m	°	°	h m
Jan. 2	33 Ceti	6.1	1 51	7 4	71	57	3 18	8 31	231	196	1 27
4	μ Ceti	4.3	4 18	9 22	111	78	5 21	10 26	206	162	1 4
5	B. D.+12°, 473	6 2	22 28	3 30	68	121	23 37	4 39	247	298	1 9
6	48 Tauri	6 3	0 30	5 28	127	180	1 11	6 8	192	242	0 40
6	75 Tauri	5.2	9 8	14 4	83	29	10 13	15 9	266	214	1 5
6	Bradley 619 ‡	4.8	10 23	15 19	137	85	10 59	15 55	214	161	0 36
8	71 Orionis	5.1	10 48	15 36	61	6	11 41	16 29	308	254	0 53
11	o^2 Cancri	5.7	10 33	15 9	161	122	11 21	15 57	236	189	0 48
Feb. 2	B.D. +14°, 657	5.9	10 12	13 21	112	59	11 7	14 17	234	182	0 56
3	Bradley 686	5.7	9 35	12 41	158	103	9 56	13 2	196	142	0 21
7	d^2 Cancri	6.2	5 5	7 56	142	195	5 58	8 49	229	278	0 53
8	π^2 Cancri †	5.6	2 9	4 57	95	144	3 3	5 51	278	330	0 54
10	σ Leonis	4.2	11 14	13 52	147	148	12 23	15 1	268	246	1 9
16	29 Ophiuchi	6.4	15 11	17 25	151	175	16 7	18 21	240	254	0 56
25	14 Ceti	5.4	5 4	6 44	46	357	6 4	7 44	270	219	1 0
Mar. 2	75 Tauri	5.2	3 56	5 17	69	82	5 30	6 51	259	229	1 34
2	B A. C. 1406	6.5	8 10	9 31	162	108	8 26	9 46	185	131	0 15
2	α Tauri	1.1	9 10	10 30	110	55	10 10	11 30	240	187	1 0
4	71 Orionis	5.1	7 9	8 21	88	56	8 37	9 49	273	222	1 28
6	ζ Cancri	4.6	12 48	13 56	57	2	13 29	14 37	331	277	0 41
7	π^1 Cancri	6.4	15 17	16 17	59	7	15 54	16 53	333	283	0 36
8	ν Leonis	5.0	9 57	10 53	108	106	11 18	12 14	298	266	1 21
9	χ Leonis	4.6	16 41	17 32	148	96	17 23	18 14	253	202	0 42
12	80 Virginis †	5.6	7 14	7 55	114	166	8 8	8 49	288	338	0 54
12	*n* Virginis	6.5	14 16	14 56	104	96	15 30	16 10	308	282	1 14
13	ξ^1 Libræ	5.7	19 35	20 10	38	350	19 59	20 34	350	300	0 24
14	Bradley 1987	6.5	14 2	14 34	82	104	15 11	15 43	322	11	1 9
15	24 Scorpii	5.0	13 44	14 12	51	86	14 24	14 52	346	14	0 40
Apr. 2	*g* Geminorum	5.0	11 58	11 16	77	22	12 56	12 14	309	254	0 58
6	σ Leonis	4.2	10 38	9 40	168	182	11 27	10 29	246	242	0 49
8	65 Virginis	6.0	16 14	15 7	115	76	17 20	16 13	291	245	1 6
8	66 Virginis	5.7	17 0	15 54	136	92	17 58	16 51	267	218	0 57
13	21 Sagittarii	5.0	16 32	15 6	78	101	17 50	16 24	293	300	1 18
May 2	ν Leonis	5.0	6 56	5 17	144	183	7 13	5 33	158	194	0 16
2	α Leonis	1.4	14 23	11 42	78	26	15 14	12 33	325	272	0 51
3	χ Leonis	4.6	16 21	13 36	131	79	17 14	14 29	271	220	0 53
6	80 Virginis †	5.6	7 44	4 49	111	162	8 40	5 44	294	343	0 55
6	*n* Virginis	6.5	14 52	11 55	87	69	15 55	12 59	325	294	1 4
8	Bradley 1987	6.5	12 11	9 7	51	92	12 42	9 38	354	30	0 31
8	η Libræ	5.5	13 9	10 4	196	228	13 17	10 13	210	240	0 9
11	ζ^1 Sagittarii	5.1	14 51	11 35	74	117	15 55	12 39	298	333	1 4
13	21 Capricorni	6.5	18 2	14 37	94	129	19 20	15 55	244	265	1 18
29	ψ Leonis	5.6	10 32	6 6	96	72	11 51	7 24	311	267	1 18
June 2	65 Virginis	6.0	16 47	12 4	169	126	17 26	12 42	238	192	0 38
7	B. A. C. 6347	5.9	21 40	16 37	104	68	22 42	17 38	244	200	1 1

Note.—The angles of position are counted from the north point and vertex of the Moon's limb, toward the east.
† Immersion below the horizon of Washington. ‡ Emersion below the horizon of Washington.

OCCULTATIONS VISIBLE AT WASHINGTON DURING THE YEAR 1906.

Date.	The Star's		IMMERSION.				EMERSION.				Duration of Occultation.
			Washington.		Angle from—		Washington.		Angle from—		
	Name.	Mag.	Sidereal Time.	Mean Time.	North Point.	Vertex.	Sidereal Time.	Mean Time.	North Point.	Vertex.	
			h m	h m	°	°	h m	h m	°	°	h m
June 25	7 Leonis	6.2	15 11	8 58	95	42	16 5	9 52	301	250	0 54
25	11 Leonis ‡	6.5	16 14	10 0	59	9	16 48	10 35	334	286	0 35
July 1	ξ^1 Libræ	5.7	17 31	10 54	58	23	18 14	11 37	340	299	0 43
2	Bradley 1987	6.5	11 47	5 7	92	135	12 49	6 8	314	349	1 1
5	ξ^2 Sagittarii	3.7	15 14	8 22	125	165	16 14	9 22	247	279	1 0
5	π Sagittarii	3.0	21 40	14 47	115	83	22 37	15 43	227	187	0 56
7	21 Capricorni †	6.5	15 54	8 53	29	78	16 29	9 28	320	6	0 35
8	ι Aquarii	4.4	20 55	13 50	45	61	22 12	15 6	271	269	1 16
12	Lalande 2632	6.5	0 26	17 4	351	8	0 57	17 35	308	316	0 31
16	75 Tauri †	5.2	20 53	13 16	43	89	21 38	14 1	287	336	0 45
16	Bradley 619	4.8	21 44	14 7	115	166	22 26	14 49	212	264	0 42
29	γ Libræ ‡	4.1	19 46	11 18	89	44	20 46	12 18	294	244	1 0
Aug. 1	21 Sagittarii	5.0	13 46	5 7	28	74	14 5	5 26	351	35	0 19
1	B. A. C. 6347	5.9	20 42	12 2	97	70	21 53	13 13	254	216	1 11
3	B.D.–18°,5783 ‡	6.4	1 4	16 16	77	31	2 3	17 14	249	198	0 58
7	B. A. C. 81	6.3	3 28	18 24	48	8	4 37	19 32	259	213	1 8
10	μ Ceti	4.3	3 11	17 55	49	37	4 38	19 21	260	223	1 26
11	B. D. + 12°, 473	6.2	21 44	12 25	48	101	22 44	13 25	268	321	1 0
28	μ Sagittarii	4.0	19 11	8 46	126	112	20 16	9 50	235	208	1 4
28	15 Sagittarii	5.3	20 3	9 38	50	26	21 3	10 38	307	273	1 0
29	π Sagittarii	3.0	16 18	5 50	112	146	17 32	7 3	254	274	1 13
30	σ Capricorni	5.5	22 35	12 1	13	344	23 10	12 36	316	282	0 35
Sept. 1	ι Aquarii	4.4	18 30	7 49	30	71	19 22	8 41	300	334	0 52
1	42 Aquarii	5.5	1 18	14 36	27	349	2 12	15 30	284	240	0 54
10	119 Tauri	4.9	23 6	11 49	113	166	23 52	12 34	216	269	0 45
25	33 Sagittarii	5.8	17 55	5 39	126	137	19 3	6 48	235	206	1 9
25	ξ^2 Sagittarii	3.7	20 4	7 49	74	58	21 23	9 7	274	244	1 18
27	19 Capricorni	5.7	20 41	8 17	9	11	21 17	8 53	319	313	0 36
27	21 Capricorni	6.5	0 9	11 44	41	3	1 8	12 43	280	235	0 59
29	70 Aquarii	6.1	0 41	12 9	25	358	1 41	13 9	281	243	1 0
Oct. 4	μ Ceti	4.3	21 40	8 48	19	71	22 23	9 32	294	345	0 44
8	χ^3 Orionis	5.1	23 44	10 37	66	118	0 43	11 36	271	326	0 59
8	68 Orionis	5.7	5 3	15 55	147	179	5 45	16 37	199	212	0 42
10	B. A. C. 2605	6.2	2 46	13 30	83	138	3 55	14 39	274	330	1 9
22	Bradley 2332	5.7	19 46	5 44	78	56	21 3	7 1	276	251	1 17
27	ψ^1 Aquarii	4.5	19 11	4 50	105	150	20 12	5 50	212	250	1 0
29	26 Ceti	6.0	4 22	13 51	94	49	5 24	14 53	217	168	1 2
31	ξ^2 Ceti	4.3	21 35	6 58	108	160	22 25	7 47	201	250	0 49
Nov. 2	63 Tauri ‡	5.7	10 53	20 5	70	19	11 47	20 59	278	231	0 54
3	m Tauri	5.0	8 4	17 13	103	51	9 17	18 26	248	193	1 13
4	B.D.+19°,1110	6.0	4 7	13 13	96	139	5 36	14 42	243	249	1 29
11	b Virginis	5.2	10 10	18 47	152	183	11 16	19 53	266	279	1 6
18	14 Sagittarii	5.6	21 50	6 2	167	128	22 1	6 13	186	144	0 11
21	31 Capricorni	6.3	21 43	5 43	81	74	23 1	7 1	237	215	1 18
21	ι Capricorni	4.3	0 24	8 23	44	3	1 25	9 24	273	229	1 1

NOTE.—The angles of position are counted from the north point and vertex of the Moon's limb, toward the east.
† Immersion below the horizon of Washington. ‡ Emersion below the horizon of Washington.

OCCULTATIONS VISIBLE AT WASHINGTON DURING THE YEAR 1906.

Date.	The Star's		IMMERSION.				EMERSION.				Duration of Occultation.
			Washington.		Angle from—		Washington.		Angle from—		
	Name.	Mag.	Sidereal Time.	Mean Time.	North Point.	Vertex.	Sidereal Time.	Mean Time.	North Point.	Vertex.	
			h m	h m	°	°	h m	h m	°	°	h m
Nov. 22	39 Aquarii	6.2	21 13	5 9	86	99	22 33	6 29	226	220	1 20
22	45 Aquarii	6.1	1 47	9 42	62	20	2 52	10 47	250	202	1 5
24	Mayer 1012	6.3	18 22	2 11	91	142	19 23	3 12	229	279	1 1
Dec. 2	15 Geminorum	6.5	5 42	12 58	25	49	6 30	13 46	325	320	0 48
2	16 Geminorum	6.2	5 24	12 40	105	136	6 55	14 10	247	228	1 30
3	56 Geminorum	5.2	7 19	14 30	90	88	8 52	16 2	283	240	1 32
3	61 Geminorum	5.8	10 47	17 58	88	32	11 57	19 7	295	239	1 9
21	B. A. C. 8214	6.5	21 9	3 11	27	60	22 14	4 16	280	300	1 5
27	63 Tauri	5.7	0 31	6 9	29	83	1 30	7 8	286	336	0 59
28	*m* Tauri †	5.0	22 10	3 45	6	55	22 30	4 4	325	16	0 19
29	χ^4 Orionis	4.7	0 55	6 25	71	126	2 3	7 32	263	319	1 7
30	ζ Geminorum	Var.	6 36	12 1	110	124	8 6	13 31	255	221	1 30
31	85 Geminorum	5.2	6 25	11 46	95	134	7 57	13 18	278	274	1 32
31	B. D.+20°,1976	6.3	10 15	15 36	56	6	11 7	16 27	333	279	0 51

Note.—The angles of position are counted from the north point and vertex of the Moon's limb, toward the east.

† Immersion below the horizon of Washington ‡ Emersion below the horizon of Washington.

FOR WASHINGTON MEAN NOON.

Date.	k	i	θ	L	Date.	k	i	θ	L
		°	°				°	°	
Jan. 1	0.550	84	191	47.4	July 5	0.592	79	12	35.9
6	0.671	70	187	41.3	10	0.512	89	16	33.5
11	0.758	59	183	35.3	15	0.432	98	19	31.7
16	0.821	51	178	30.8	20	0.351	107	22	30.1
21	0.865	43	173	28.7	25	0.262	118	25	26.9
26	0.899	37	168	26.5	30	0.169	131	30	21.2
31	0.931	31	162	26.1	Aug. 4	0.082	147	38	12.4
Feb. 5	0.957	24	156	26.9	9	0.021	163	63	3.7
10	0.979	16	148	29.0	14	0.016	165	123	2.9
15	0.994	9	133	32.5	19	0.088	145	181	15.4
20	0.999	4	69	38.1	24	0.238	122	191	36.1
25	0.988	12	358	46.3	29	0.429	98	197	56.5
Mar. 2	0.947	27	343	57.2	Sept. 3	0.643	73	202	68.3
7	0.849	46	337	67.6	8	0.818	50	207	67.4
12	0.687	68	334	71.3	13	0.933	30	212	58.1
17	0.479	92	331	62.1	18	0.984	15	223	47.3
22	0.278	116	328	42.9	23	0.999	4	355	38.6
27	0.105	142	323	18.3	28	0.993	9	6	32.6
Apr. 1	0.027	162	309	5.0	Oct. 3	0.979	16	18	28.8
6	0.007	177	253	1.2	8	0.959	23	22	26.6
11	0.052	154	162	8.6	13	0.934	30	23	25.7
16	0.134	137	156	18.7	18	0.904	36	23	25.9
21	0.227	123	153	25.9	23	0.869	42	22	27.3
26	0.319	111	152	29.9	28	0.823	50	20	29.9
May 1	0.403	101	152	32.0	Nov. 2	0.764	58	18	33.9
6	0.485	92	152	34.2	7	0.680	69	16	39.5
11	0.566	82	152	35.9	12	0.563	83	14	45.7
16	0.649	73	153	39.0	17	0.391	103	13	47.1
21	0.739	61	155	44.0	22	0.198	127	11	35.7
26	0.833	48	159	51.1	27	0.028	161	6	6.9
31	0.924	32	164	64.4	Dec. 2	0.030	160	151	7.3
June 5	0.987	13	176	67.1	7	0.213	125	158	39.8
10	0.995	8	331	66.8	12	0.429	98	160	54.7
15	0.944	28	350	60.8	17	0.605	78	163	50.1
20	0.857	44	357	52.1	22	0.726	63	166	42.4
25	0.766	58	3	44.8	27	0.808	52	170	35.7
30	0.677	69	8	39.2	32	0.857	44	174	30.6

NOTATION.

k=the ratio of the area of the illuminated portion of the apparent disk to the area of the entire apparent disk regarded as circular.

i=the angle between the Sun and Earth, as seen from the planet.

θ=the angle which the line joining the cusps, or extremities of the illuminated portion, makes with the meridian.

L=the brilliancy of the disk. The unit of L is the amount of light received by an eye from a circular disk with the same albedo as the planet, subtending an angular radius of one second of arc, situated at distance unity from the Sun, and illuminated by the latter as the mean disk of the planet is illuminated.

FOR WASHINGTON MEAN NOON.

Date.	*k*	*i*	*θ*	*L*	Date.	*k*	*i*	*θ*	*L*
		°	°				°	°	
Jan. 1	0.985	14.2	180.1	48.9	Aug. 14	0.654	72.1	23.2	97.7
6	0.988	12.5	176.1	48.5	19	0.634	74.5	23.4	102.7
11	0.991	10.9	171.9	48.1	24	0.613	76.9	23.4	108.1
16	0.993	9.3	167.4	47.8	29	0.592	79.4	23.2	113.9
21	0.995	7.8	162.1	47.5	Sept. 3	0.570	82.0	22.9	120.5
26	0.997	6.2	155.7	47.2	8	0.547	84.6	22.4	127.7
31	0.998	4.7	147.3	47.0	13	0.523	87.3	21.8	135.6
Feb. 5	0.999	3.2	133.1	46.9	18	0.498	90.2	21.0	144.1
10	1.000	2.1	106.3	46.8	23	0.472	93.2	20.2	153.3
15	1.000	2.3	62.8	46.8	28	0.444	96.4	19.3	163.3
20	1.000	2.8	21.3	46.8	Oct. 3	0.414	99.8	18.4	173.8
25	0.999	4.2	5.4	46.9	8	0.383	103.5	17.4	184.3
Mar. 2	0.997	5.8	357.0	47.0	13	0.350	107.5	16.5	194.3
7	0.995	7.4	351.7	47.2	18	0.314	111.9	15.8	203.2
12	0.993	9.0	348.3	47.4	23	0.275	116.8	15.2	208.4
17	0.991	10.7	345.8	47.7	28	0.233	122.3	14.9	208.6
22	0.988	12.5	344.2	48.0	Nov. 2	0.189	128.6	15.0	201.0
27	0.984	14.2	343.0	48.4	7	0.142	135.7	15.7	178.0
Apr. 1	0.980	16.0	342.6	48.8	9	0.123	138.8	16.1	165.4
6	0.976	17.8	342.3	49.3	11	0.106	142.0	16.6	150.6
11	0.971	19.6	342.6	49.8	13	0.088	145.4	17.3	133.4
16	0.965	21.5	343.2	50.4	15	0.071	149.1	18.0	113.2
21	0.959	23.4	344.1	51.0	17	0.054	152.9	19.0	92.2
26	0.952	25.3	345.2	51.7	19	0.039	156.8	20.3	71.2
May 1	0.945	27.3	346.6	52.5	21	0.027	161.0	21.8	49.9
6	0.937	29.2	348.4	53.4	23	0.017	165.2	24.0	31.3
11	0.928	31.2	350.4	54.3	25	0.009	169.4	27.6	16.6
16	0.918	33.2	352.5	55.3	27	0.003	173.7	35.6	6.0
21	0.908	35.3	354.8	56.3	29	0.000	177.6	70.3	0.9
26	0.897	37.3	357.2	57.5	Dec. 1	0.001	176.2	157.2	2.2
31	0.886	39.4	359.8	58.8	3	0.005	172.3	185.2	8.9
June 5	0.874	41.5	2.3	60.2	5	0.011	168.0	190.8	21.2
10	0.861	43.6	4.7	61.6	7	0.020	163.6	193.7	38.0
15	0.848	45.7	7.1	63.2	9	0.032	159.4	195.7	58.5
20	0.835	47.8	9.4	64.9	11	0.045	155.4	196.4	79.7
25	0.821	49.9	11.6	66.8	13	0.060	151.5	197.0	101.5
30	0.806	52.1	13.6	68.8	15	0.077	147.8	197.5	123.5
July 5	0.791	54.3	15.4	70.9	17	0.094	144.2	197.8	144.4
10	0.776	56.5	17.1	73.3	19	0.113	140.6	198.0	161.2
15	0.760	58.7	18.5	75.9	21	0.131	137.5	198.0	175.2
20	0.744	60.9	19.7	78.7	23	0.150	134.4	197.9	188.0
25	0.727	63.1	20.8	81.8	25	0.169	131.4	197.7	198.5
30	0.710	65.3	21.7	85.3	27	0.188	128.6	197.5	206.4
Aug. 4	0.692	67.5	22.4	89.1	29	0.206	125.9	197.2	212.4
9	0.673	69.8	22.9	93.2	31	0.224	123.4	196.9	216.2
14	0.654	72.1	23.2	97.7					

NOTATION.

k = the ratio of the area of the illuminated portion of the apparent disk to the area of the entire apparent disk regarded as circular.

i = the angle between the Sun and Earth, as seen from the planet.

θ = the angle which the line joining the cusps, or extremities of the illuminated portion, makes with the meridian.

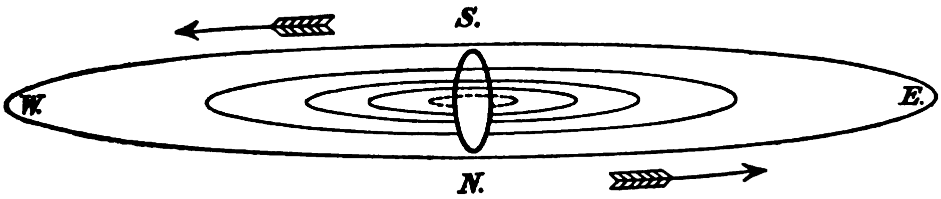
L = the brilliancy of the disk. The unit of *L* is the amount of light received by an eye from a circular disk with the same albedo as the planet, subtending an angular radius of one second of arc, situated at distance unity from the Sun, and illuminated by the latter as the mean disk of the planet is illuminated.

Mars not being in opposition during the year 1906 the satellites will not be visible.

APPARENT DISK OF MARS, 1906.

		k
January	1,	0.912
January	31,	0.934
March	2,	0.954
April	1,	0.971
May	1,	0.985
May	31,	0.994
June	30,	0.999
July	30,	0.999
August	29,	0.994
September	28,	0.984
October	28,	0.971
November	27,	0.953
December	27,	0.929

k = the ratio of the area of the illuminated portion of the apparent disk to the area of the entire apparent disk regarded as circular.



APPARENT ORBITS OF THE SATELLITES OF JUPITER AT DATE OF OPPOSITION, DECEMBER 28, 1906, AS SEEN IN AN INVERTING TELESCOPE.

(*The vertical scale is three times the horizontal one.*)

In the above diagram the central vertical ellipse represents the disk of Jupiter, elongated three times in the vertical direction, and the dotted ellipse represents the orbit of Satellite V. The object of the figure is to facilitate the identification of satellites in cases where the diagrams of configurations do not suffice. For example, if two satellites are seen together a reference to the above figure will show which is the inner and which the outer one of the pair.

The ephemeris of the four outer satellites of Jupiter is given on pages 490–511, each month occupying two pages, which contain respectively the times of the phenomena and the diagrams of the configurations. The latter are given for each day, Jupiter being represented by a light disk, ○, in the center of the page, and the relative positions of the satellites at the Washington time stated above the diagrams being indicated by dots. The designation of each satellite is shown by a numeral placed to the right or left of the dot according as the motion of the satellite at the instant in question is toward the east or toward the west—the motion being always toward the numeral. In constructing the diagrams the latitudes of the satellites are always considered zero, except where two or more of them chance to be at nearly the same distance from the planet, when they are placed one above the other according to their apparent latitudes. If at the epoch of any configuration, one or more satellites are projected on the disk of the planet, that phenomenon is indicated by a light disk, ○, at the left-hand side of the page; and if any satellites are invisible on account of being occulted behind the disk of the planet, or eclipsed by its shadow, that circumstance is indicated by a dark disk, ●, at the right-hand side of the page. In both cases, the annexed numerals serve to point out which satellites are thus rendered invisible.

When an observation is made at a different hour from that for which the diagram is constructed, the place of the satellite may be found by transferring its given position to the above diagram, and estimating its motion during the elapsed interval by means of the following table of—

MEAN SYNODIC PERIODS OF THE SATELLITES.

	d	h	m	s		d
I.	1	18	28	35.945	=	1.769 860 48
II.	3	13	17	53.735	=	3.554 094 16
III.	7	3	59	35.854	=	7.166 387 20
IV.	16	18	5	6.928	=	16.753 552 41
V.	0	11	57	27.635	=	0.498 236 52

SATELLITE V.

WASHINGTON MEAN TIME OF EVERY TWENTIETH GREATEST ELONGATION.

	d	h			d	h			d	h			d	h	
Jan.	10	9.7	E.	Oct.	12	11.1	E.	Jan.	10	15.7	W.	Oct.	12	17.1	W.
	20	8.8	E.		22	10.2	E.		20	14.8	W.		22	16.2	W.
	30	8.0	E.	Nov.	1	9.3	E.		30	14.0	W.	Nov.	1	15.3	W.
Feb.	9	7.2	E.		11	8.4	E.	Feb.	9	13.1	W.		11	14.4	W.
	19	6.3	E.		21	7.5	E.		19	12.3	W.		21	13.5	W.
Mar.	1	5.5	E.	Dec.	1	6.6	E.	Mar.	1	11.5	W.	Dec.	1	12.6	W.
					11	17.6	E.						11	11.7	W.
Sept.	22	12.8	E.		21	16.7	E.	Sept.	22	18.8	W.		21	10.8	W.
Oct.	2	12.0	E.		31	15.8	E.	Oct.	2	17.9	W.		31	9.8	W.

WASHINGTON MEAN TIME OF SUPERIOR GEOCENTRIC CONJUNCTION.

SATELLITE I.

		h	m			h	m			h	m			h	m
Jan.	2	2	54.5	Mar.	20	23	52.9	July	31	19	41.4	Oct.	17	16	57.1
	3	21	21.5		22	18	22.7	Aug.	2	14	11.3		19	11	24.8
	5	15	48.7		24	12	52.6		4	8	41.1		21	5	52.5
	7	10	15.9		26	7	22.5		6	3	10.9		23	0	20.1
	9	4	43.2		28	1	52.5		7	21	40.7		24	18	47.7
	10	23	10.6		29	20	22.5		9	16	10.4		26	13	15.2
	12	17	38.1		31	14	52.6		11	10	40.1		28	7	42.6
	14	12	5.7	Apr.	2	9	22.6		13	5	9.8		30	2	9.9
	16	6	33.3		4	3	52.7		14	23	39.5		31	20	37.2
	18	1	0.9		5	22	22.8		16	18	9.1	Nov.	2	15	4.4
	19	19	28.6		7	16	52.9		18	12	38.7		4	9	31.5
	21	13	56.5		9	11	23.1		20	7	8.3		6	3	58.6
	23	8	24.4		11	5	53.3		22	1	37.8		7	22	25.6
	25	2	52.4		13	0	23.5		23	20	7.3		9	16	52.5
	26	21	20.4		14	18	53.7		25	14	36.8		11	11	19.4
	28	15	48.6		16	13	23.9		27	9	6.2		13	5	46.2
	30	10	16.9		18	7	54.1		29	3	35.6		15	0	12.9
Feb.	1	4	45.2		20	2	24.3		30	22	4.9		16	18	39.6
	2	23	13.5		21	20	54.6	Sept.	1	16	34.2		18	13	6.2
	4	17	41.9		23	15	24.9		3	11	3.4		20	7	32.8
	6	12	10.4		25	9	55.3		5	5	32.6		22	1	59.3
	8	6	39.0		27	4	25.6		7	0	1.7		23	20	25.8
	10	1	7.7		28	22	56.0		8	18	30.8		25	14	52.2
	11	19	36.4		30	17	26.3		10	12	59.8		27	9	18.5
	13	14	5.2	May	2	11	56.7		12	7	28.8		29	3	44.8
	15	8	34.1		4	6	27.0		14	1	57.8		30	22	11.0
	17	3	3.0		6	0	57.4		15	20	26.7	Dec.	2	16	37.2
	18	21	32.0		7	19	27.8		17	14	55.5		4	11	3.3
	20	16	1.0		9	13	58.3		19	9	24.3		6	5	29.4
	22	10	30.1						21	3	53.1		7	23	55.5
	24	4	59.3						22	22	21.8		9	18	21.5
	25	23	28.5						24	16	50.4		11	12	47.5
	27	17	57.8						26	11	19.0		13	7	13.5
Mar.	1	12	27.1	July	12	8	11.1		28	5	47.5		15	1	39.5
	3	6	56.5		14	2	41.2		30	0	16.0		16	20	5.4
	5	1	25.9		15	21	11.3	Oct.	1	18	44.4		18	14	31.3
	6	19	55.4		17	15	41.4		3	13	12.7		20	8	57.2
	8	14	24.9		19	10	11.5		5	7	41.0		22	3	23.1
	10	8	54.5		21	4	41.6		7	2	9.2		23	21	49.0
	12	3	24.1		22	23	11.6		8	20	37.3		25	16	14.9
	13	21	53.8		24	17	41.6		10	15	5.4		27	10	40.8
	15	16	23.5		26	12	11.6		12	9	33.4		29	5	6.8
	17	10	53.3		28	6	41.6		14	4	1.4		30	23	32.7
	19	5	23.1		30	1	11.5		15	22	29.3				

WASHINGTON MEAN TIME OF SUPERIOR GEOCENTRIC CONJUNCTION

SATELLITE II.

		h m			h m			h m			h m
Jan.	3	0 27.5	Mar.	25	17 59.1	July	31	21 7.4	Oct.	18	2 41.4
	6	13 38.1		29	7 21.8	Aug.	4	10 32.3		21	15 56.5
	10	2 49.3	Apr.	1	20 44.9		7	23 56.0		25	5 10.6
	13	16 1.2		5	10 8.3		11	13 20.5		28	18 24.4
	17	5 13.7		8	23 31.9		15	2 43.7	Nov.	1	7 37.3
	20	18 26.8		12	12 56.0		18	16 7.7		4	20 49.9
	24	7 40.5		16	2 20.0		22	5 30.2		8	10 1.4
	27	20 54.9		19	15 44.5		25	18 53.4		11	23 12.8
	31	10 10.0		23	5 9.0		29	8 15.3		15	12 23.2
Feb.	3	23 25.7		26	18 34.0	Sept.	1	21 37.8		19	1 33.2
	7	12 41.9		30	7 58.8		5	10 59.0		22	14 42.7
	11	1 58.8	May	3	21 24.2		9	0 20.7		26	3 51.7
	14	15 16.0		7	10 49.3		12	13 41.1		29	17 0.3
	18	4 34.0		11	0 15.2		16	3 2.0	Dec.	3	6 8.3
	21	17 52.5					19	16 21.3		6	19 16.0
	25	7 11.4					23	5 41.0		10	8 23.4
	28	20 30.8					26	18 59.6		13	21 30.6
Mar.	4	9 50.7	July	14	2 2.6		30	8 18.3		17	10 37.5
	7	23 11.0		17	15 27.5	Oct.	3	21 35.8		20	23 44.2
	11	12 31.9		21	4 53.3		7	10 53.3		24	12 50.6
	15	1 53.2		24	18 17.8		11	0 9.8		28	1 56.9
	18	15 14.8		28	7 43.3		14	13 26.2		31	15 3.0
	22	4 36.7									

SATELLITE III.

		h m			h m			h m			h m
Jan.	3	1 9.8	Mar.	30	0 54.7	July	30	4 40.1	Oct.	17	2 28.4
	10	4 43.1	Apr.	6	5 15.9	Aug.	6	9 3.6		24	6 15.6
	17	8 21.9		13	9 38.8		13	13 25.0		31	9 58.1
	24	12 5.6		20	14 3.6		20	17 44.6	Nov.	7	13 35.7
	31	15 54.8		27	18 30.6		27	22 1.3		14	17 9.3
Feb.	7	19 48.5	May	4	22 58.2	Sept.	4	2 15.2		21	20 38.0
	14	23 46.3					11	6 26.2		29	0 2.8
	22	3 48.5					18	10 34.0	Dec.	6	3 23.5
Mar.	1	7 54.8					25	14 38.9		13	6 41.2
	8	12 5.4	July	15	19 49.5	Oct.	2	18 39.7		20	9 57.0
	15	16 18.9		23	0 15.3		9	22 36.6		27	13 11.9
	22	20 35.9									

SATELLITE IV.

		h m			h m			h m			h m
Jan.	3	12 8.1	Apr.	14	1 56.8	July	24	6 34.1	Nov.	1	23 27.8
	20	4 6.4		30	22 28.1	Aug.	10	2 55.4		18	15 13.3
Feb.	5	21 10.7					26	22 51.1	Dec.	5	6 2.8
	22	15 14.7				Sept.	12	18 13.8		21	20 15.1
Mar.	11	10 10.3					29	12 52.9			
	28	5 48.6				Oct.	16	6 39.7			

WASHINGTON MEAN TIME.

JANUARY.

d	h	m	s				d	h	m	s				d	h	m	s			
1	4	34		I.	Tr.	In.	11	19	16		I.	Tr.	In.	21	16	12	54	I.	Ec.	Re.
	4	37		II.	Tr.	In.		20	14		II.	Tr.	In.	22	10	1		I.*	Tr.	In.
	5	28		I.*	Sh.	In.		20	21		I.	Sh.	In.		11	13		I.*	Sh.	In.
	6	27		II.*	Sh.	In.		21	29		I.	Tr.	Eg.		11	56		II.*	Tr.	In.
	6	46		I.*	Tr.	Eg.		22	25		II.	Sh.	In.		12	14		I.*	Tr.	Eg.
	7	11		II.*	Tr.	Eg.		22	34		I.	Sh.	Eg.		13	27		I.*	Sh.	Eg.
	7	41		I.*	Sh.	Eg.		22	48		II.	Tr.	Eg.		14	23		II.	Sh.	In.
	9	4		II.*	Sh.	Eg.	12	1	2		II.	Sh.	Eg.		14	31		II.	Tr.	Eg.
2	1	48		I.	Oc.	Dis.		16	32		I.	Oc.	Dis.		17	0		II.	Sh.	Eg.
	4	54	37	I.	Ec.	Re.		19	48	11	I.	Ec.	Re.	23	7	18		I.*	Oc.	Dis.
	23	1		I.	Tr.	In.	13	13	43		I.*	Tr.	In.		10	41	55	I.*	Ec.	Re.
	23	10		II.	Oc.	Dis.		14	44		II.	Oc.	Dis.	24	4	29		I.	Tr.	In.
	23	57		I.	Sh.	In.		14	50		I.	Sh.	In.		5	42		I.*	Sh.	In.
3	0	17		III.	Oc.	Dis.		15	56		I.	Tr.	Eg.		6	23		II.*	Oc.	Dis.
	1	13		I.	Tr.	Eg.		17	3		I.	Sh.	Eg.		6	42		I.*	Tr.	Eg.
	2	3		III.	Oc.	Re.		17	45		III.	Tr.	In.		7	55		I.*	Sh.	Eg.
	2	10		I.	Sh.	Eg.		19	27	59	II.	Ec.	Re.		11	8		III.*	Oc.	Dis.
	3	34	20	II.	Ec.	Re.		19	36		III.	Tr.	Eg.		11	21	53	II.*	Ec.	Re.
	4	7	27	III.	Ec.	Dis.		22	11		III.	Sh.	In.		13	4		III.*	Oc.	Re.
	5	50	17	III.*	Ec.	Re.	14	0	9		III.	Sh.	Eg.		16	10	35	III.	Ec.	Dis.
	20	15		I.	Oc.	Dis.		10	59		I.*	Oc.	Dis.		17	57	23	III.	Ec.	Re.
	23	23	27	I.	Ec.	Re.		14	17	6	I.*	Ec.	Re.	25	1	46		I.	Oc.	Dis.
4	17	28		I.	Tr.	In.	15	8	11		I.*	Tr.	In.		5	10	48	I.	Ec.	Re.
	17	48		II.	Tr.	In.		9	18		I.*	Sh.	In.		22	57		I.	Tr.	In.
	18	26		I.	Sh.	In.		9	27		II.*	Tr.	In.	26	0	11		I.	Sh.	In.
	19	40		I.	Tr.	Eg.		10	24		I.*	Tr.	Eg.		1	10		I.	Tr.	Eg.
	19	47		II.	Sh.	In.		11	31		I.*	Sh.	Eg.		1	11		II.	Tr.	In.
	20	23		II.	Tr.	Eg.		11	44		II.*	Sh.	In.		2	24		I.	Sh.	Eg.
	20	39		I.	Sh.	Eg.		12	2		II.*	Tr.	Eg.		3	42		II.	Sh.	In.
	22	23		II.	Sh.	Eg.		14	22		II.*	Sh.	Eg.		3	47		II.	Tr.	Eg.
5	14	42		I.*	Oc.	Dis.	16	5	27		I.	Oc.	Dis.		6	20		II.*	Sh.	Eg.
	17	52	26	I.	Ec.	Re.		8	46	6	I.*	Ec.	Re.		20	14		I.	Oc.	Dis.
6	11	55		I.*	Tr.	In.	17	2	38		I.	Tr.	In.		23	39	48	I.	Ec.	Re.
	12	21		II.*	Oc.	Dis.		3	47		I.	Sh.	In.	27	17	25		I.	Tr.	In.
	12	54		I.*	Sh.	In.		3	56		II.	Oc.	Dis.		18	40		I.	Sh.	In.
	14	7		I.*	Tr.	Eg.		4	51		I.	Tr.	Eg.		19	37		II.	Oc.	Dis.
	14	11		III.*	Tr.	In.		6	0		I.*	Sh.	Eg.		19	38		I.	Tr.	Eg.
	15	7		I.*	Sh.	Eg.		7	26		III.*	Oc.	Dis.		20	53		I.	Sh.	Eg.
	15	59		III.	Tr.	Eg.		8	45	54	II.*	Ec.	Re.	28	0	39	56	II.	Ec.	Re.
	16	52	12	II.	Ec.	Re.		9	18		III.*	Oc.	Re.		1	8		III.	Tr.	In.
	18	10		III.	Sh.	In.		12	9	29	III.*	Ec.	Dis.		3	5		III.	Tr.	Eg.
	20	7		III.	Sh.	Eg.		13	54	57	III.*	Ec.	Re.		6	11		III.*	Sh.	In.
7	9	10		I.*	Oc.	Dis.		23	54		I.	Oc.	Dis.		8	12		III.*	Sh.	Eg.
	12	21	20	I.*	Ec.	Re.	18	3	14	59	I.	Ec.	Re.		14	42		I.	Oc.	Dis.
8	6	22		I.*	Tr.	In.		21	6		I.	Tr.	In.		18	8	44	I.	Ec.	Re.
	7	1		II.*	Tr.	In.		22	16		I.	Sh.	In.	29	11	53		I.*	Tr.	In.
	7	23		I.*	Sh.	In.		22	41		II.	Tr.	In.		13	9		I.*	Sh.	In.
	8	34		I.*	Tr.	Eg.		23	19		I.	Tr.	Eg.		14	6		I.	Tr.	Eg.
	9	6		II.*	Sh.	In.	19	0	29		I.	Sh.	Eg.		14	27		II.	Tr.	In.
	9	35		II.*	Tr.	Eg.		1	4		II.	Sh.	In.		15	22		I.	Sh.	Eg.
	9	36		I.*	Sh.	Eg.		1	16		II.	Tr.	Eg.		17	1		II.	Sh.	In.
	11	43		II.*	Sh.	Eg.		3	41		II.	Sh.	Eg.		17	3		II.	Tr.	Eg.
9	3	37		I.	Oc.	Dis.		18	22		I.	Oc.	Dis.		19	39		II.	Sh.	Eg.
	6	50	20	I.*	Ec.	Re.		21	43	59	I.	Ec.	Re.	30	9	10		I.*	Oc.	Dis.
10	0	49		I.	Tr.	In.	20	15	33		I.	Tr.	In.		12	37	45	I.*	Ec.	Re.
	1	32		II.	Oc.	Dis.		16	45		I.	Sh.	In.	31	6	21		I.*	Tr.	In.
	1	52		I.	Sh.	In.		17	9		II.	Oc.	Dis.		7	37		I.*	Sh.	In.
	3	1		I.	Tr.	Eg.		17	46		I.	Tr.	Eg.		8	34		I.*	Tr.	Eg.
	3	48		III.	Oc.	Dis.		18	58		I.	Sh.	Eg.		8	52		II.*	Oc.	Dis.
	4	5		I.	Sh.	Eg.		21	24		III.	Tr.	In.		9	51		I.*	Sh.	Eg.
	5	38		III.*	Oc.	Re.		22	3	54	II.	Ec.	Re.		13	57	59	II.	Ec.	Re.
	6	10	4	II.*	Ec.	Re.		23	18		III.	Tr.	Eg.		14	55		III.	Oc.	Dis.
	8	8	11	III.*	Ec.	Dis.	21	2	11		III.	Sh.	In.		16	54		III.	Oc.	Re.
	9	52	19	III.*	Ec.	Re.		4	10		III.	Sh.	Eg.		20	12	10	III.	Ec.	Dis.
	22	4		I.	Oc.	Dis.		12	50		I.*	Oc.	Dis.		22	0	19	III.	Ec.	Re.
11	1	19	12	I.	Ec.	Re.														

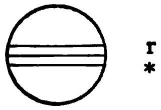
NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

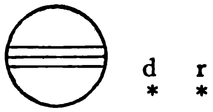
JANUARY.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

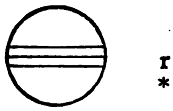
I.



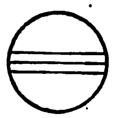
III.



II.



IV. No Eclipse.



Configurations at 10h 0m for an Inverting Telescope.

Day.	West.		East.
1	·4 ·3 1·2·	○	
2	·4 ·2 ·3	○	·1
3	1·	○ ·4	·3 ·2
4		○	2· 1· ·4 ·3
5	2· ·1	○	3· ·4
6	·2	○	3· 1· ·4
7	3·	○	·2 ·4 ·1 ●
8	·3 1·2·	○	4·
9	·2 ·3	○	·1 4·
10	1·	○	·3 ·2 4·
11		○	4· 1·2· ·3
12	2· 4· ·1	○	3·
13	4· ·2	○	3· 1·
14	4· 3· ·1	○	·2
15	○1·○2· 4· 3·	○	
16	·4 ·3 ·2	○	·1
17	·4 1·	○	·3 ·2
18	·4	○	·1 2· ·3
19	2· ·4 ·1	○	3·
20	·2	○	·4 1· 3·
21	3· ·1	○	·2 ·4
22	3·	○	2· 1· ·4
23	·3 2·	○	·4 ·1 ●
24	1· ·3	○	4· ·2 ●
25		○	·1 2· ·3 4·
26	2· 1·	○	3· 4·
27	·2	○	1· 4· 3·
28	3· ·1 4·	○	·2
29	3· 4·	○	1· 2·
30	4· ·3 2·	○	·1 ●
31	4· 1· ·3	○	·2 ●

WASHINGTON MEAN TIME.

FEBRUARY.

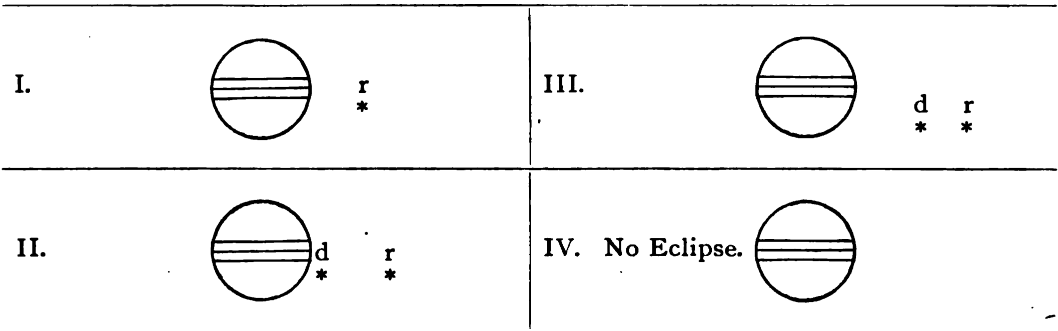
d	h	m	s			
1	3	39		I.	Oc.	Dis.
	7	6	39	I.*	Ec.	Re.
2	0	49		I.	Tr.	In.
	2	6		I.	Sh.	In.
	3	2		I.	Tr.	Eg.
	3	44		II.	Tr.	In.
	4	19		I.	Sh.	Eg.
	6	20		II.*	Tr.	Eg.
	6	21		II.*	Sh.	In.
	8	59		II.*	Sh.	Eg.
	22	7		I.	Oc.	Dis.
3	1	35	39	I.	Ec.	Re.
	19	17		I.	Tr.	In.
	20	35		I.	Sh.	In.
	21	30		I.	Tr.	Eg.
	22	7		II.	Oc.	Dis.
	22	48		I.	Sh.	Eg.
4	3	16	5	II.	Ec.	Re.
	4	57		III.	Tr.	In.
	6	57		III.*	Tr.	Eg.
	10	12		III.*	Sh.	In.
	12	14		III.*	Sh.	Eg.
	16	35		I.	Oc.	Dis.
	20	4	35	I.	Ec.	Re.
5	13	45		I.	Tr.	In.
	15	4		I.	Sh.	In.
	15	59		I.	Tr.	Eg.
	17	1		II.	Tr.	In.
	17	17		I.	Sh.	Eg.
	19	37		II.	Tr.	Eg.
	19	40		II.	Sh.	In.
	22	18		II.	Sh.	Eg.
6	11	4		I.*	Oc.	Dis.
	14	33	36	I.	Ec.	Re.
7	8	14		I.*	Tr.	In.
	9	33		I.*	Sh.	In.
	10	27		I.*	Tr.	Eg.
	11	24		II.*	Oc.	Dis.
	11	46		I.*	Sh.	Eg.
	14	0		II.	Oc.	Re.
	14	1	34	II.	Ec.	Dis.
	16	34	12	II.	Ec.	Re.
	18	48		III.	Oc.	Dis.
	20	49		III.	Oc.	Re.
8	0	13	6	III.	Ec.	Dis.
	2	2	37	III.	Ec.	Re.
	5	32		I.	Oc.	Dis.
	9	2	29	I.*	Ec.	Re.
9	2	42		I.	Tr.	In.
	4	2		I.	Sh.	In.
	4	56		I.	Tr.	Eg.
	6	15		I.*	Sh.	Eg.
	6	18		II.*	Tr.	In.
	8	55		II.*	Tr.	Eg.
	8	59		II.*	Sh.	In.
	11	37		II.*	Sh.	Eg.
10	0	1		I.	Oc.	Dis.
	3	31	29	I:	Ec.	Re.
	21	11		I.	Tr.	In.
	22	30		I.	Sh.	In.
	23	24		I.	Tr.	Eg.
11	0	40		II.	Oc.	Dis.
11	0	44		I.	Sh.	Eg.
	3	17		II.	Oc.	Re.
	3	19	34	II.	Ec.	Dis.
	5	52	22	II.	Ec.	Re.
	8	51		III.*	Tr.	In.
	10	54		III.*	Tr.	Eg.
	14	13		III.	Sh.	In.
	16	16		III.	Sh.	Eg.
	18	30		I	Oc.	Dis.
	22	0	25	I.	Ec.	Re.
12	15	40		I.	Tr.	In.
	16	59		I.	Sh.	In.
	17	53		I.	Tr.	Eg.
	19	12		I.	Sh.	Eg.
	19	37		II.	Tr.	In.
	22	14		II.	Tr.	Eg.
	22	18		II.	Sh.	In.
13	0	56		II.	Sh.	Eg.
	12	58		I.	Oc.	Dis.
	16	29	26	I.	Ec.	Re.
14	10	8		I.*	Tr.	In.
	11	28		I.*	Sh.	In.
	12	22		I.*	Tr.	Eg.
	13	41		I.	Sh.	Eg.
	13	57		II.	Oc.	Dis.
	16	35		II.	Oc.	Re.
	16	37	35	II.	Ec.	Dis.
	19	10	33	II.	Ec.	Re.
	22	44		III.	Oc.	Dis.
15	0	48		III.	Oc.	Re.
	4	13	53	III.	Ec.	Dis.
	6	4	48	III.*	Ec.	Re.
	7	27		I.*	Oc.	Dis.
	10	58	19	I.*	Ec.	Re.
16	4	37		I.	Tr.	In.
	5	57		I.	Sh.	In.
	6	50		I.*	Tr.	Eg.
	8	10		I.*	Sh.	Eg.
	8	55		II *	Tr.	In.
	11	33		II.*	Tr.	Eg.
	11	37		II.*	Sh.	In.
	14	16		II.	Sh.	Eg.
17	1	56		I.	Oc.	Dis.
	5	27	19	I.	Ec.	Re.
	23	6		I.	Tr.	In.
18	0	26		I.	Sh.	In.
	1	19		I.	Tr.	Eg.
	2	39		I.	Sh.	Eg.
	3	15		II.	Oc.	Dis.
	5	53		II.	Oc.	Re.
	5	55	37	II.	Ec.	Dis.
	8	28	45	II.*	Ec.	Re.
	12	50		III.	Tr.	In.
	14	56		III.	Tr.	Eg.
	18	14		III.	Sh.	In.
	20	18		III.	Sh.	Eg.
	20	25		I.	Oc.	Dis.
	23	56	14	I.	Ec.	Re.
19	17	35		I.	Tr.	In.
	18	54		I.	Sh.	In.
	19	48		I.	Tr.	Eg.
	21	8		I.	Sh.	Eg.
19	22	15		II.	Tr.	In.
20	0	52		II.	Tr.	Eg.
	0	56		II.	Sh.	In.
	3	35		II.	Sh.	Eg.
	14	54		I.	Oc.	Dis.
	18	25	14	I.	Ec.	Re.
21	12	4		I.*	Tr.	In.
	13	23		I.	Sh.	In.
	14	17		I.	Tr.	Eg.
	15	37		I.	Sh.	Eg.
	16	34		II.	Oc.	Dis.
	19	11		II.	Oc.	Re.
	19	13	42	II.	Ec.	Dis.
	21	47	1	II.	Ec.	Re.
22	2	45		III.	Oc.	Dis.
	4	52		III.	Oc.	Re.
	8	14	30	III.*	Ec.	Dis.
	9	23		I.*	Oc.	Dis.
	10	6	49	III.*	Ec.	Re.
	12	54	7	I.	Ec.	Re.
23	6	33		I.*	Tr.	In.
	7	52		I.*	Sh.	In.
	8	46		I.*	Tr.	Eg.
	10	6		I.*	Sh.	Eg.
	11	35		II.*	Tr.	In.
	14	12		II.	Tr.	Eg.
	14	15		II.	Sh.	In.
	16	54		II.	Sh.	Eg.
24	3	53		I.	Oc.	Dis.
	7	23	6	I.*	Ec.	Re.
25	1	2		I.	Tr.	In.
	2	21		I.	Sh.	In.
	3	15		I.	Tr.	Eg.
	4	34		I.	Sh.	Eg.
	5	52		II.	Oc.	Dis.
	8	30		II.*	Oc.	Re.
	8	31	45	II.*	Ec.	Dis.
	11	5	15	II.*	Ec.	Re.
	16	54		III.	Tr.	In.
	19	2		III.	Tr.	Eg.
	22	15		III.	Sh.	In.
	22	22		I.	Oc.	Dis.
26	0	21		III.	Sh.	Eg.
	1	52	1	I.	Ec.	Re.
	19	31		I.	Tr.	In.
	20	50		I.	Sh.	In.
	21	45		I.	Tr.	Eg.
	23	3		I.	Sh.	Eg.
27	0	55		II.	Tr.	In.
	3	33		II.	Tr.	Eg.
	3	35		II.	Sh.	In.
	6	13		II.	Sh.	Eg.
	16	51		I.	Oc.	Dis.
	20	21	0	I.	Ec.	Re.
28	14	0		I.	Tr.	In.
	15	19		I.	Sh.	In.
	16	14		I.	Tr.	Eg.
	17	32		I.	Sh.	Eg.
	19	12		II.	Oc.	Dis.
	21	49	54	II.	Ec.	Dis.
	21	50		II.	Oc.	Re.

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

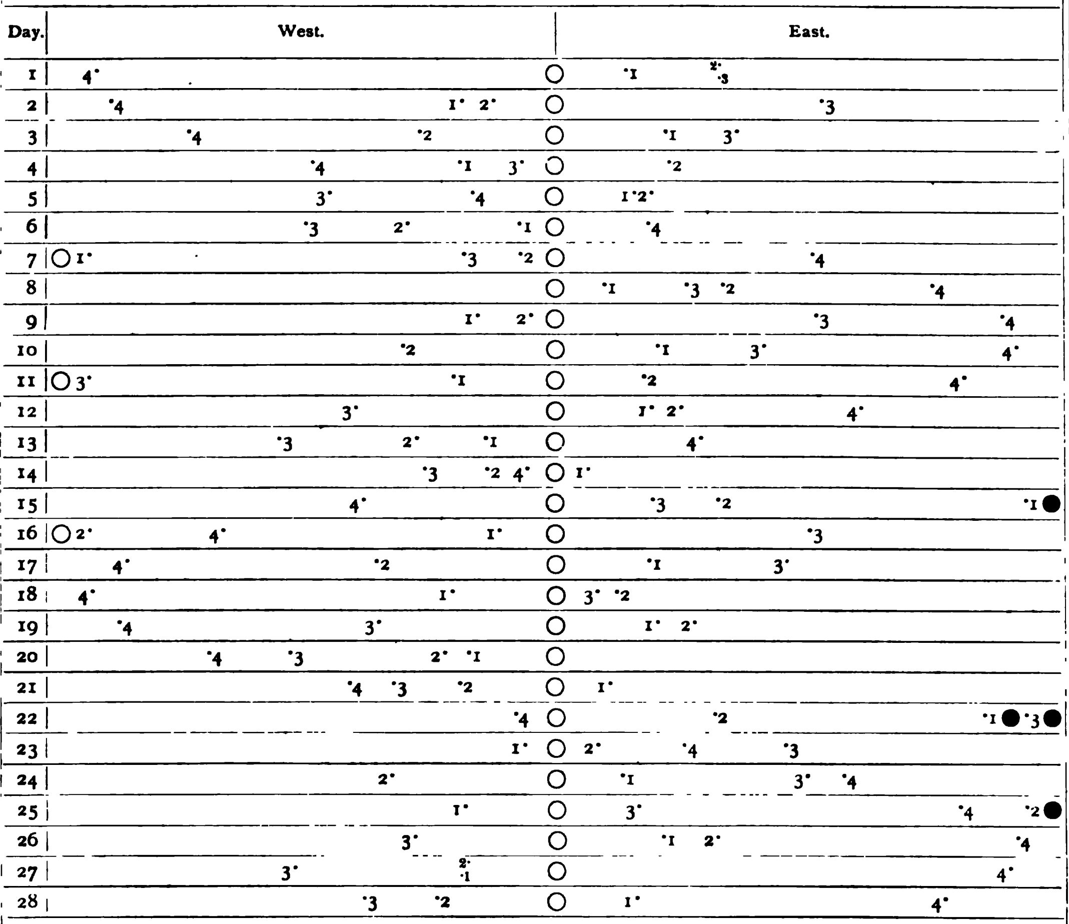
WASHINGTON MEAN TIME.

FEBRUARY.

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at $9^h\ 30^m$ for an Inverting Telescope.



Day.	West.		East.
1	4·	○	·1 2· ·3
2	·4 1· 2·	○	·3
3	·4 ·2	○	·1 3·
4	·4 ·1 3·	○	·2
5	3· ·4	○	1·2·
6	·3 2· ·1	○	·4
7	○ 1· ·3 ·2	○	·4
8		○	·1 ·3 ·2 ·4
9	1· 2·	○	·3 ·4
10	·2	○	·1 3· 4·
11	○ 3· ·1	○	·2 4·
12	3·	○	1· 2· 4·
13	·3 2· ·1	○	4·
14	·3 ·2 4·	○	1·
15	4·	○	·3 ·2 ·1 ●
16	○ 2· 4· 1·	○	·3
17	4· ·2	○	·1 3·
18	4· 1·	○	3· ·2
19	·4 3·	○	1· 2·
20	·4 ·3 2· ·1	○	
21	·4 ·3 ·2	○	1·
22	·4	○	·2 ·1 ● ·3 ●
23	1·	○	2· ·4 ·3
24	2·	○	·1 3· ·4
25	1·	○	3· ·4 ·2 ●
26	3·	○	·1 2· ·4
27	3· 2· ·1	○	4·
28	·3 ·2	○	1· 4·

WASHINGTON MEAN TIME.

MARCH.

d	h	m	s			
1	0	23	35	II.	Ec.	Re.
	6	50		III.*	Oc.	Dis.
	8	59		III.*	Oc.	Re.
	11	20		I.*	Oc.	Dis
	12	15	9	III.	Ec.	Dis.
	14	8	53	III	Ec.	Re.
	14	49	53	I.	Ec.	Re.
2	8	29		I.*	Tr.	In.
	9	48		I.*	Sh.	In.
	10	43		I.*	Tr.	Eg.
	12	1		I.	Sh.	Eg.
	14	16		II.	Tr.	In.
	16	54		II.	Tr.	Eg.
	16	54		II.	Sh.	In.
	19	32		II.	Sh.	Eg.
3	5	50		I.	Oc.	Dis.
	9	18	51	I.*	Ec.	Re.
4	2	59		I.	Tr.	In.
	4	16		I.	Sh.	In.
	5	12		I.	Tr.	Eg.
	6	30		I.*	Sh.	Eg.
	8	32		II.*	Oc.	Dis.
	13	41	52	II.	Ec.	Re.
	21	1		III.	Tr.	In.
	23	11		III.	Tr.	Eg.
5	0	19		I.	Oc.	Dis.
	2	16		III.	Sh.	In.
	3	47	45	I.	Ec.	Re.
	4	23		III.	Sh.	Eg.
	21	28		I.	Tr.	In.
	22	45		I.	Sh.	In.
	23	42		I.	Tr.	Eg.
6	0	59		I.	Sh.	Eg.
	3	37		II.	Tr.	In.
	6	12		II.	Sh.	In.
	6	15		II.	Tr.	Eg.
	8	51		II.*	Sh.	Eg.
	18	49		I.	Oc.	Dis.
	22	16	44	I.	Ec.	Re.
7	15	58		I.	Tr.	In.
	17	14		I.	Sh.	In.
	18	11		I.	Tr.	Eg.
	19	28		I.	Sh.	Eg.
	21	52		II.	Oc.	Dis.
8	3	0	17	II.	Ec.	Re.
	11	0		III.*	Oc.	Dis.
	13	11		III.	Oc.	Re.
	13	18		I.	Oc.	Dis.
	16	16	20	III.	Ec.	Dis.
	16	45	35	I.	Ec.	Re.
	18	11	30	III.	Ec.	Re.
9	10	27		I.*	Tr.	In.
	11	43		I.	Sh.	In.
	12	41		I.	Tr.	Eg.
	13	56		I.	Sh.	Eg.
	16	58		II.	Tr.	In.
	19	31		II.	Sh.	In.
	19	37		II.	Tr.	Eg.
	22	10		II.	Sh.	Eg.
10	7	48		I.*	Oc.	Dis.
	11	14	32	I.*	Ec.	Re.
11	4	57		I.	Tr.	In.
	6	12		I.	Sh.	In.
	7	10		I.*	Tr.	Eg.
	8	25		I.*	Sh.	Eg.

d	h	m	s			
11	11	13		II.*	Oc.	Dis.
	16	18	36	II.	Ec.	Re.
12	1	12		III.	Tr.	In.
	2	17		I.	Oc.	Dis.
	3	23		III.	Tr.	Eg.
	5	43	25	I.	Ec.	Re.
	6	16		III.	Sh.	In.
	8	24		III.*	Sh.	Eg.
	23	26		I.	Tr.	In.
13	0	40		I.	Sh.	In.
	1	40		I.	Tr.	Eg.
	2	54		I.	Sh.	Eg.
	6	20		II.	Tr.	In.
	8	50		II.*	Sh.	In.
	8	59		II.*	Tr.	Eg.
	11	29		II.	Sh.	Eg.
	20	47		I.	Oc.	Dis.
14	0	12	23	I.	Ec.	Re.
	17	56		I.	Tr.	In.
	19	9		I.	Sh.	In.
	20	10		I.	Tr.	Eg.
	21	23		I.	Sh.	Eg.
15	0	34		II.	Oc.	Dis.
	5	37	5	II.	Ec.	Re.
	15	13		III.	Oc.	Dis.
	15	17		I.	Oc.	Dis.
	17	25		III.	Oc.	Re.
	18	41	14	I.	Ec.	Re.
	20	17	11	III.	Ec.	Dis.
	22	13	46	III.	Ec.	Re.
16	12	25		I.	Tr.	In.
	13	38		I.	Sh.	In.
	14	39		I.	Tr.	Eg.
	15	52		I.	Sh.	Eg.
	19	42		II.	Tr.	In.
	22	9		II.	Sh.	In.
	22	21		II.	Tr.	Eg.
17	0	48		II.	Sh.	Eg.
	9	46		I.*	Oc.	Dis.
	13	10	9	I.	Ec.	Re.
18	6	55		I.*	Tr.	In.
	8	7		I.*	Sh.	In.
	9	9		I.*	Tr.	Eg.
	10	21		I.*	Sh.	Eg.
	13	55		II.	Oc.	Dis.
	18	55	26	II.	Ec.	Re.
19	4	16		I.	Oc.	Dis.
	5	26		III.	Tr.	In.
	7	38		III.*	Tr.	Eg.
	7	39	1	I.*	Ec.	Re.
	10	17		III.*	Sh.	In.
	12	26		III.	Sh.	Eg.
20	1	25		I.	Tr.	In.
	2	36		I.	Sh.	In.
	3	39		I.	Tr.	Eg.
	4	50		I.	Sh.	Eg.
	9	4		II.*	Tr.	In.
	11	28		II.	Sh.	In.
	11	44		II.	Tr.	Eg.
	14	7		II.	Sh.	Eg.
	22	46		I.	Oc.	Dis.
21	2	7	58	I.	Ec.	Re.
	19	55		I.	Tr.	In.
	21	5		I.	Sh.	In.

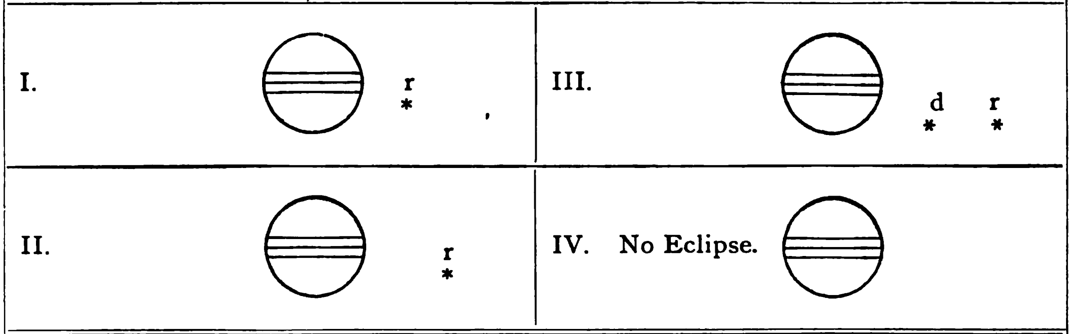
d	h	m	s			
21	22	8		I.	Tr.	Eg.
	23	18		I.	Sh.	Eg.
22	3	17		II.	Oc.	Dis.
	8	14	0	II.*	Ec.	Re.
	17	16		I.	Oc.	Dis.
	19	29		III.	Oc.	Dis.
	20	36	48	I.	Ec.	Re.
	21	43		III.	Oc.	Re.
23	0	18	24	III.	Ec.	Dis.
	2	16	26	III.	Ec.	Re.
	14	24		I.	Tr.	In.
	15	34		I.	Sh.	In.
	16	38		I.	Tr.	Eg.
	17	47		I.	Sh.	Eg.
	22	27		II.	Tr.	In.
24	0	46		II.	Sh.	In.
	1	7		II.	Tr.	Eg.
	3	26		II.	Sh.	Eg.
	11	46		I.	Oc.	Dis.
	15	5	42	I.	Ec.	Re.
25	8	54		I.*	Tr.	In.
	10	2		I.*	Sh.	In.
	11	8		I.	Tr.	Eg.
	12	16		I.	Sh.	Eg.
	16	39		II.	Oc.	Dis.
	21	32	22	II.	Ec.	Re.
26	6	16		I.	Oc.	Dis.
	9	34	32	I.*	Ec.	Re.
	9	42		III.*	Tr.	In.
	11	56		III.	Tr.	Eg.
	14	17		III.	Sh.	In.
	16	28		III.	Sh.	Eg.
27	3	24		I.	Tr.	In.
	4	31		I.	Sh.	In.
	5	38		I.	Tr.	Eg.
	6	45		I.*	Sh.	Eg.
	11	50		II.	Tr.	In.
	14	5		II.	Sh.	In.
	14	30		II.	Tr.	Eg.
	16	45		II.	Sh.	Eg.
28	0	46		I.	Oc.	Dis.
	4	3	28	I.	Ec.	Re.
	21	54		I.	Tr.	In.
	23	0		I.	Sh.	In.
29	0	8		I.	Tr.	Eg.
	1	14		I.	Sh.	Eg.
	6	2		II.	Oc.	Dis.
	10	51	1	II.	Ec.	Re.
	19	16		I.	Oc.	Dis.
	22	32	17	I.	Ec.	Re.
	23	47		III.	Oc.	Dis.
30	2	2		III.	Oc.	Re.
	4	18	53	III.	Ec.	Dis.
	6	18	22	III.	Ec.	Re.
	16	24		I.	Tr.	In.
	17	29		I.	Sh.	In.
	18	38		I.	Tr.	Eg.
	19	43		I.	Sh.	Eg.
31	1	14		II.	Tr.	In.
	3	23		II.	Sh.	In.
	3	54		II.	Tr.	Eg.
	6	4		II.	Sh.	Eg.
	13	46		I.	Oc.	Dis.
	17	1	10	I.	Ec.	Re.

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse. Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; *Visible at Washington.

WASHINGTON MEAN TIME.

MARCH.

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 9h 0m for an Inverting Telescope.

Day.	West.		East.
1	·1	○ ·3	·2 4·
2	○ 1·	○	2· 4· ·3
3	2· 4·	○	3· ·1 ●
4	4· 1·	○	3· ·2 ●
5	4· 3·	○	·1 2·
6	4· 3· 1· 2·	○	
7	·4 ·3 ·2	○	1·
8	·4 ·1 ·3	○	·2
9	·4	○	1· 2· ·3
10	·42·	○	3· ·1 ●
11	1· ·2	○ ·4	3·
12	3·	○	·1 ·2 ·4
13	3· 1· · 2·	○	·4
14	·3 ·2	○	1· ·4
15	·1 ·3	○	·2 ·4
16		○	1· 2· ·3 4·
17	2·	○	·3 4· ·1 ●
18	○ 1· ·2	○	3· 4·
19	3·	○	·14· ·2
20	3· 4· 1·	2· ○	
21	4· ·3 ·2	○	·1
22	4· ·1 ·3	○	·2
23	4·	○	1· ·32·
24	·4 2· ·1	○	·3
25	○ 1· ·4 ·2	○	3·
26	·4	3· ○	·2 ·1 ●
27	3· ·4 1·	○	2·
28	·3 2·	○	·4 ·1
29	·3 1·	○	·4 ·2 ●
30		○	·31· 2· ·4
31	2· ·1	○	·3 ·4

WASHINGTON MEAN TIME.

APRIL.

d	h	m	s			
1	10	54		I.	Tr.	In.
	11	58		I.	Sh.	In.
	13	8		I.	Tr.	Eg.
	14	12		I.	Sh.	Eg.
	19	25		II.	Oc.	Dis.
2	0	9	24	II.	Ec.	Re.
	8	16		I.*	Oc.	Dis.
	11	29	59	I.	Ec.	Re.
	14	2		III.	Tr.	In.
	16	18		III.	Tr.	Eg.
	18	18		III.	Sh.	In.
	20	30		III.	Sh.	Eg.
3	5	24		I.	Tr.	In.
	6	26		I.	Sh.	In.
	7	38		I.*	Tr.	Eg.
	8	40		I.*	Sh.	Eg.
	14	37		II.	Tr.	In.
	16	42		II.	Sh.	In.
	17	17		II.	Tr.	Eg.
	19	22		II.	Sh.	Eg.
4	2	46		I.	Oc.	Dis.
	5	58	53	I.	Ec.	Re.
	23	54		I.	Tr.	In.
5	0	55		I.	Sh.	In.
	2	8		I.	Tr.	Eg.
	3	9		I.	Sh.	Eg.
	8	48		II.*	Oc.	Dis.
	13	28	8	II.	Ec.	Re.
	21	16		I.	Oc.	Dis.
6	0	27	40	I.	Ec.	Re.
	4	8		III.	Oc.	Dis.
	6	24		III.	Oc.	Re.
	8	19	9	III.*	Ec.	Dis.
	10	20	5	III.	Ec.	Re.
	18	24		I.	Tr.	In.
	19	24		I.	Sh.	In.
	20	38		I.	Tr.	Eg.
	21	38		I.	Sh.	Eg.
7	4	1		II.	Tr.	In.
	6	0		II.	Sh.	In.
	6	41		II.	Tr.	Eg.
	8	41		II.*	Sh.	Eg.
	15	46		I.	Oc.	Dis.
	18	56	32	I.	Ec.	Re.
8	12	55		I.	Tr.	In.
	13	53		I.	Sh.	In.
	15	9		I.	Tr.	Eg.
	16	7		I.	Sh.	Eg.
	22	12		II.	Oc.	Dis.
9	2	46	32	II.	Ec.	Re.
	10	16		I.	Oc.	Dis.
	13	25	19	I.	Ec.	Re.
	18	24		III.	Tr.	In.
	20	41		III.	Tr.	Eg.
	22	18		III.	Sh.	In.
10	0	32		III.	Sh.	Eg.
	7	25		I.*	Tr.	In.
	8	22		I.*	Sh.	In.
	9	39		I.*	Tr.	Eg.
	10	36		I.	Sh.	Eg.
	17	25		II.	Tr.	In.
	19	19		II.	Sh.	In.

d	h	m	s			
10	20	6		II.	Tr.	Eg.
	22	0		II.	Sh.	Eg.
11	4	46		I.	Oc.	Dis.
	7	54	12	I.*	Ec.	Re.
12	1	55		I.	Tr.	In.
	2	51		I.	Sh.	In.
	4	9		I.	Tr.	Eg.
	5	5		I.	Sh.	Eg.
	11	36		II.	Oc.	Dis.
	16	5	21	II.	Ec.	Re.
	23	16		I.	Oc.	Dis.
13	2	22	58	I.	Ec.	Re.
	8	30		III.*	Oc.	Dis.
	10	47		III.	Oc.	Re.
	12	19	14	III.	Ec.	Dis.
	14	21	37	III.	Ec.	Re.
	20	25		I.	Tr.	In.
	21	20		I.	Sh.	In.
	22	39		I.	Tr.	Eg.
	23	33		I.	Sh.	Eg.
14	6	49		II.	Tr.	In.
	8	37		II.*	Sh.	In.
	9	30		II.*	Tr.	Eg.
	11	18		II.	Sh.	Eg.
	17	47		I.	Oc.	Dis.
	20	51	48	I.	Ec.	Re.
15	14	55		I.	Tr.	In.
	15	48		I.	Sh.	In.
	17	10		I.	Tr.	Eg.
	18	2		I.	Sh.	Eg.
16	1	0		II.	Oc.	Dis.
	5	23	45	II.	Ec.	Re.
	12	17		I.	Oc.	Dis.
	15	20	34	I.	Ec.	Re.
	22	48		III.	Tr.	In.
17	1	6		III.	Tr.	Eg.
	2	19		III.	Sh.	In.
	4	34		III.	Sh.	Eg.
	9	25		I.	Tr.	In.
	10	17		I.	Sh.	In.
	11	40		I.	Tr.	Eg.
	12	31		I.	Sh.	Eg.
	20	13		II.	Tr.	In.
	21	56		II.	Sh.	In.
	22	54		II.	Tr.	Eg.
18	0	36		II.	Sh.	Eg.
	6	47		I.	Oc.	Dis.
	9	49	25	I.	Ec.	Re.
19	3	56		I.	Tr.	In.
	4	46		I.	Sh.	In.
	6	10		I.	Tr.	Eg.
	7	0		I.	Sh.	Eg.
	14	24		II.	Oc.	Dis.
	18	42	38	II.	Ec.	Re.
20	1	17		I.	Oc.	Dis.
	4	18	10	I.	Ec.	Re.
	12	54		III.	Oc.	Dis.
	15	13		III.	Oc.	Re.
	16	19	19	III.	Ec.	Dis.
	18	23	10	III.	Ec.	Re.
	22	26		I.	Tr.	In.

d	h	m	s			
20	23	15		I.	Sh.	In.
21	0	40		I.	Tr.	Eg.
	1	29		I.	Sh.	Eg.
	9	38		II.	Tr.	In.
	11	14		II.	Sh.	In.
	12	19		II.	Tr.	Eg.
	13	55		II.	Sh.	Eg.
	19	48		I.	Oc.	Dis.
	22	46	58	I.	Ec.	Re.
22	16	56		I.	Tr.	In.
	17	43		I.	Sh.	In.
	19	11		I.	Tr.	Eg.
	19	57		I.	Sh.	Eg.
23	3	48		II.	Oc.	Dis.
	8	1	3	II.*	Ec.	Re.
	14	18		I.	Oc.	Dis.
	17	15	42	I.	Ec.	Re.
24	3	13		III.	Tr.	In.
	5	33		III.	Tr.	Eg.
	6	20		III.	Sh.	In.
	8	36		III.*	Sh.	Eg.
	11	27		I.	Tr.	In.
	12	12		I.	Sh.	In.
	13	41		I.	Tr.	Eg.
	14	26		I.	Sh.	Eg.
	23	2		II.	Tr.	In.
25	0	32		II.	Sh.	In.
	1	43		II.	Tr.	Eg.
	3	13		II.	Sh.	Eg.
	8	48		I.*	Oc.	Dis.
	11	44	32	I.	Ec.	Re.
26	5	57		I.	Tr.	In.
	6	41		I.	Sh.	In.
	8	11		I.*	Tr.	Eg.
	8	55		I.*	Sh.	Eg.
	17	13		II.	Oc.	Dis.
	21	20	1	II.	Ec.	Re.
27	3	18		I.	Oc.	Dis.
	6	13	15	I.	Ec.	Re.
	17	20		III.	Oc.	Dis.
	19	41		III.	Oc.	Re.
	20	19	53	III.	Ec.	Dis.
	22	25	10	III.	Ec.	Re.
28	0	27		I.	Tr.	In.
	1	10		I.	Sh.	In.
	2	42		I.	Tr.	Eg.
	3	24		I.	Sh.	Eg.
	12	27		II.	Tr.	In.
	13	50		II.	Sh.	In.
	15	8		II.	Tr.	Eg.
	16	31		II.	Sh.	Eg.
	21	49		I.	Oc.	Dis.
29	0	42	1	I.	Ec.	Re.
	18	58		I.	Tr.	In.
	19	39		I.	Sh.	In.
	21	12		I.	Tr.	Eg.
	21	53		I.	Sh.	Eg.
30	6	38		II.	Oc.	Dis.
	10	38	26	II.	Ec.	Re.
	16	19		I.	Oc.	Dis.
	19	10	44	I.	Ec.	Re.

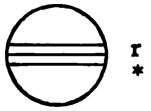
NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse. Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

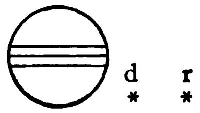
APRIL.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

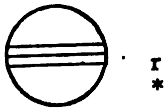
I.



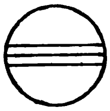
III.



II.



IV. No Eclipse.



Configurations at 8h 30m for an Inverting Telescope.

Day.	West.		East.
1	·2	○	1· 3· ·4
2		○	3· ·2 4· ·1 ●
3	3· 1·	○	2· 4·
4	3· 2·	○	·1 4·
5	3· 1· ·2	○	4·
6	4·	○	·1 2· ·3 ●
7	4· ·1 2·	○	·3
8	4· ·2	○	1· 3·
9	4· ·1	○	3· ·2
10	○ 1· ·4 3·	○	2·
11	·4 3· 2·	○	·1
12	·4 ·3 1· ·2	○	
13	·4	○ ·3	·1 ·2
14	○ 2· ·1	○	·4 ·3
15	·2	○	1· ·4 3·
16	·1	○	·2 3· ·4
17	3·	⊙	1· 2· ·4
18	3· 2·	○	4· ·1 ●
19	·3 ·2 1·	○	4·
20	·3	○	·1 ·2 4·
21	1·	○	2· ·34·
22	·2	○	4· 1· ·3
23	4· ·1	○	·2 3·
24	4· 3·	○	1· 2·
25	4· 3· 2· ·1	○	
26	4· ·3 ·2 1·	○	
27	·4 ·3	○	·1 ·2
28	·4 1·	○	2· ·3
29	·4 2·	○	·1 ·3
30	·1 ·4	○	3· ·2 ●

WASHINGTON MEAN TIME.

MAY.

d	h	m	s			
1	7	40		III.*	Tr.	In.
	10	1		III.	Tr.	Eg.
	10	20		III.	Sh.	In.
	12	37		III.	Sh.	Eg.
	13	28		I.	Tr.	In.
	14	7		I.	Sh.	In.
	15	43		I.	Tr.	Eg.
	16	22		I.	Sh.	Eg.
2	1	51		II.	Tr.	In.
	3	8		II.	Sh.	In.
	4	33		II.	Tr.	Eg.
	5	50		II.	Sh.	Eg.
	10	50		I.	Oc.	Dis.
	13	39	32	I.	Ec.	Re.
3	7	59		I.*	Tr.	In.
	8	36		I.*	Sh.	In.
	10	13		I.	Tr.	Eg.
	10	50		I.	Sh.	Eg.
	20	3		II.	Oc.	Dis.
	23	57	28	II.	Ec.	Re.
4	5	20		I.	Oc.	Dis.
	8	8	14	I.*	Ec.	Re.
4	21	47		III.	Oc.	Dis.
5	0	9		III.	Oc.	Re.
	0	20	2	III.	Ec.	Dis.
	2	26	47	III.	Ec.	Re.
	2	29		I.	Tr.	In.
	3	5		I.	Sh.	In.
	4	44		I.	Tr.	Eg.
	5	19		I.	Sh.	Eg.
	15	16		II.	Tr.	In.
	16	26		II.	Sh.	In.
	17	58		II.	Tr.	Eg.
	19	8		II.	Sh.	Eg.
	23	50		I.	Oc.	Dis.
6	2	36	58	I.	Ec.	Re.
	21	0		I.	Tr.	In.
	21	34		I.	Sh.	In.
	23	14		I.	Tr.	Eg.
	23	48		I.	Sh.	Eg.
7	9	28		II.	Oc.	Dis.
	13	15	52	II.	Ec.	Re.
	18	21		I.	Oc.	Dis.
7	21	5	40	I.	Ec.	Re.
8	12	7		III.	Tr.	In.
	14	20		III.	Sh.	In.
	14	29		III.	Tr.	Eg.
	15	30		I.	Tr.	In.
	16	2		I.	Sh.	In.
	16	39		III.	Sh.	Eg.
	17	45		I.	Tr.	Eg.
	18	17		I.	Sh.	Eg.
9	4	40		II.	Tr.	In.
	5	44		II.	Sh.	In.
	7	23		II.	Tr.	Eg.
	8	26		II.	Sh.	Eg.
	12	51		I.	Oc.	Dis.
	15	34	26	I.	Ec.	Re.
10	10	1		I.	Tr.	In.
	10	31		I.	Sh.	In.
	12	15		I.	Tr.	Eg.
	12	45		I.	Sh.	Eg.
	22	54		II.	Oc.	Dis.
11	2	34	58	II.	Ec.	Re.

By reason of the proximity of JUPITER to the SUN the phenomena of the satellites are not given from May 11 to July 10.

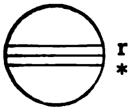
NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

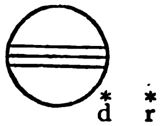
MAY.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

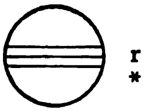
I.



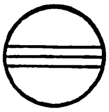
III.



II.



IV. No Eclipse.



Configurations at 8ʰ 0ᵐ for an Inverting Telescope.

Day.	West.		East.
1	○ 3·	○	1· ·4 2·
2	3· 2· ·1	○	·4
3	○ 1· ·3 ·2	○	·4
4	·3	○	·2 ·4 ·1 ●
5	1·	○	2· ·3 4·
6	2·	○	·1 ·3 4·
7	1· ·2	○	3· 4·
8		○	3· 1· 4· ·2
9	3· ·1 2·	4· ○	
10	3· 4· ·2	○	1·
11		○	
12		○	
13		○	
14		○	
15		○	
16		○	
17		○	
18		○	
19		○	
20		○	
21		○	
22		○	
23		○	
24		○	
25		○	
26		○	
27		○	
28		○	
29		○	
30		○	
31		○	

WASHINGTON MEAN TIME.

JULY.

d	h	m	s			
11	9	16		I.	Sh.	In.
	9	47		I.	Tr.	In.
	11	31		I.	Sh.	Eg.
	12	2		I.	Tr.	Eg.
12	2	19		III.	Sh.	In.
	4	25		III.	Tr.	In.
	4	50		III.	Sh.	Eg.
	4	58		II.	Sh.	In.
	6	2		II.	Tr.	In.
	6	33	50	I.	Ec.	Dis.
	7	4		III.	Tr.	Eg.
	7	43		II.	Sh.	Eg.
	8	47		II.	Tr.	Eg.
	9	19		I.	Oc.	Re.
13	3	44		I.	Sh.	In.
	4	17		I.	Tr.	In.
	5	59		I.	Sh.	Eg.
	6	32		I.	Tr.	Eg.
	23	32	34	II.	Ec.	Dis.
14	1	2	17	I.	Ec.	Dis.
	3	25		II.	Oc.	Re.
	3	49		I.	Oc.	Re.
	22	13		I.	Sh.	In.
	22	47		I.	Tr.	In.
15	0	28		I.	Sh.	Eg.
	1	3		I.	Tr.	Eg.
	16	14	51	III.*	Ec.	Dis.
	18	16		II.	Sh.	In.
	19	25		II.	Tr.	In.
	19	30	44	I.	Ec.	Dis.
	21	0		II.	Sh.	Eg.
	21	9		III.	Oc.	Re.
	22	11		II.	Tr.	Eg.
	22	19		I.	Oc.	Re.
16	16	41		I.	Sh.	In.
	17	18		I.	Tr.	In.
	18	56		I.	Sh.	Eg.
	19	33		I.	Tr.	Eg.
17	12	50	35	II.	Ec.	Dis.
	13	59	11	I.	Ec.	Dis.
	16	49		I.	Oc.	Re.
	16	50		II.	Oc.	Re.
18	11	10		I.	Sh.	In.
	11	48		I.	Tr.	In.
18	13	25		I.	Sh.	Eg.
	14	3		I.	Tr.	Eg.
19	6	18		III.	Sh.	In.
	7	32		II.	Sh.	In.
	8	27	38	I.	Ec.	Dis.
	8	48		II.	Tr.	In.
	8	50		III.	Sh.	Eg.
	8	52		III.	Tr.	In.
	10	17		II.	Sh.	Eg.
	11	19		I.	Oc.	Re.
	11	32		III.	Tr.	Eg.
	11	34		II.	Tr.	Eg.
20	5	39		I.	Sh.	In.
	6	18		I.	Tr.	In.
	7	54		I.	Sh.	Eg.
	8	34		I.	Tr.	Eg.
21	2	9	42	II.	Ec.	Dis.
	2	56	4	I.	Ec.	Dis.
	5	49		I.	Oc.	Re.
	6	16		II.	Oc.	Re.
22	0	7		I.	Sh.	In.
	0	48		I.	Tr.	In.
	2	22		I.	Sh.	Eg.
	3	4		I.	Tr.	Eg.
	20	13	26	III.	Ec.	Dis.
	20	50		II.	Sh.	In.
	21	24	30	I.	Ec.	Dis.
	22	12		II.	Tr.	In.
	22	36	2	III.	Ec.	Re.
	22	55		III.	Oc.	Dis.
	23	34		II.	Sh.	Eg.
23	0	19		I.	Oc.	Re.
	0	58		II.	Tr.	Eg.
	1	36		III.	Oc.	Re.
	18	36		I.	Sh.	In.
	19	18		I.	Tr.	In.
	20	51		I.	Sh.	Eg.
	21	34		I.	Tr.	Eg.
24	15	27	41	II.*	Ec.	Dis.
	15	52	56	I.*	Ec.	Dis.
	18	49		I.	Oc.	Re.
	19	41		II.	Oc.	Re.
25	13	5		I.	Sh.	In.
25	13	49		I.	Tr.	In.
	15	20		I.*	Sh.	Eg.
	16	4		I.*	Tr.	Eg.
26	10	6		II.	Sh.	In.
	10	18		III.	Sh.	In.
	10	21	22	I.	Ec.	Dis.
	11	35		II.	Tr.	In.
	12	51		II.	Sh.	Eg.
	12	52		III.	Sh.	Eg.
	13	17		III.	Tr.	In.
	13	19		I.	Oc.	Re.
	14	21		II.	Tr.	Eg.
	15	59		III.*	Tr.	Eg.
27	7	33		I.	Sh.	In.
	8	19		I.	Tr.	In.
	9	48		I.	Sh.	Eg.
	10	34		I.	Tr.	Eg.
28	4	46	46	II.	Ec.	Dis.
	4	49	48	I.	Ec.	Dis.
	7	49		I.	Oc.	Re.
	9	7		II.	Oc.	Re.
29	2	2		I.	Sh.	In.
	2	49		I.	Tr.	In.
	4	17		I.	Sh.	Eg.
	5	5		I.	Tr.	Eg.
	23	18	12	I.	Ec.	Dis.
	23	24		II.	Sh.	In.
30	0	12	4	III.	Ec.	Dis.
	0	58		II.	Tr.	In.
	2	8		II.	Sh.	Eg.
	2	19		I.	Oc.	Re.
	2	36	5	III.	Ec.	Re.
	3	18		III.	Oc.	Dis.
	3	44		II.	Tr.	Eg.
	6	2		III.	Oc.	Re.
	20	30		I.	Sh.	In.
	21	19		I.	Tr.	In.
	22	45		I.	Sh.	Eg.
	23	35		I.	Tr.	Eg.
31	17	46	36	I.	Ec.	Dis.
	18	4	42	II.	Ec.	Dis.
	20	49		I.	Oc.	Re.
	22	31		II.	Oc.	Re.

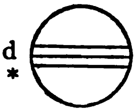
Note.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

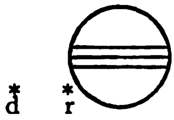
JULY.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

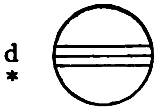
I.



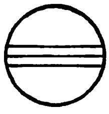
III.



II.



IV. No Eclipse.



Configurations at 16ʰ 0ᵐ for an Inverting Telescope.

Day.	West.		East.
1		O	
2		O	
3		O	
4		O	
5		O	
6		O	
7		O	
8		O	
9		O	
10		O	
11	1·	O	3· 2· 4·
12	3· 2·	O	·1 4·
13	3· 1· ·2	O	4·
14	·3	O	1· ·2 4·
15	·1 ·3	O	4· 2·
16	2· 4·	O	1· ·3
17	4·	O	3· ·1 ● ·2 ●
18	4· 1·	O	3· 2·
19	4· 3· 2·	O	·1
20	·4 3· ·2 1·	O	
21	·4 ·3	O	1· ·2
22	·4 ·1 ·3	O	2·
23	2· ·4	O	1· ·3
24		O	·4 ·3 ·1 ● ·2 ●
25	O 1·	O	2· 3· ·4
26	3· 2·	O	·1 ·4
27	3· ·2 1·	O	·4
28	·3	O	·1 ·2 4·
29	·1 ·3	O	2· 4·
30	2·	O	1· ·3 4·
31	·1 ·2	O	4· ·3

WASHINGTON MEAN TIME.

AUGUST.

d	h	m	s				d	h	m	s				d	h	m	s			
1	14	59		I.*	Sh.	In.	11	14	44		II.*	Oc.	Re.	22	2	46		I.	Oc.	Re.
	15	49		I.*	Tr.	In.	12	5	50		I.	Sh.	In.		6	54		II.	Oc.	Re.
	17	14		I.	Sh.	Eg.		6	48		I.	Tr.	In.		20	41		I.	Sh.	In.
	18	5		I.	Tr.	Eg.		8	5		I.	Sh.	Eg.		21	47		I.	Tr.	In.
2	12	15	1	I.	Ec.	Dis.		9	4		I.	Tr.	Eg.		22	57		I.	Sh.	Eg.
	12	40		II.	Sh.	In.	13	3	5	22	I.	Ec.	Dis.	23	0	3		I.	Tr.	Eg.
	14	17		III.	Sh.	In.		4	31		II.	Sh.	In.		17	55	36	I.	Ec.	Dis.
	14	20		II.	Tr.	In.		6	18		I.	Oc.	Re.		20	22		II.	Sh.	In.
	15	19		I.*	Oc.	Re.		6	27		II.	Tr.	In.		21	15		I.	Oc.	Re.
	15	25		II.*	Sh.	Eg.		7	16		II.	Sh.	Eg.		22	33		II.	Tr.	In.
	16	52		III.	Sh.	Eg.		8	9	57	III.	Ec.	Dis.		23	8		II.	Sh.	Eg.
	17	7		II.	Tr.	Eg.		9	15		II.	Tr.	Eg.	24	1	20		II.	Tr.	Eg.
	17	40		III.	Tr.	In.		10	36	47	III.	Ec.	Re.		2	14		III.	Sh.	In.
	20	25		III.	Tr.	Eg.		12	2		III.	Oc.	Dis.		4	53		III.	Sh.	Eg.
3	9	28		I.	Sh.	In.		14	48		III.*	Oc.	Re.		6	39		III.	Tr.	In.
	10	19		I.	Tr.	In.	14	0	19		I.	Sh.	In.		9	28		III.	Tr.	Eg.
	11	43		I.	Sh.	Eg.		1	18		I.	Tr.	In.		15	10		I.*	Sh.	In.
	12	35		I.	Tr.	Eg.		2	34		I.	Sh.	Eg.		16	16		I.*	Tr.	In.
4	6	43	26	I.	Ec.	Dis.		3	34		I.	Tr.	Eg.		17	25		I.	Sh.	Eg.
	7	23	45	II.	Ec.	Dis.		21	33	44	I.	Ec.	Dis.		18	33		I.	Tr.	Eg.
	9	49		I.	Oc.	Re.		23	18	29	II.	Ec.	Dis.	25	12	23	59	I.	Ec.	Dis.
	11	56		II.	Oc.	Re.	15	0	47		I.	Oc.	Re.		15	14	3	II.*	Ec.	Dis.
5	3	56		I.	Sh.	In.		4	7		II.	Oc.	Re.		15	45		I.*	Oc.	Re.
	4	49		I.	Tr.	In.		18	47		I.	Sh.	In.		20	17		II.	Oc.	Re.
	6	11		I.	Sh.	Eg.		19	48		I.	Tr.	In.	26	9	38		I.	Sh.	In.
	7	5		I.	Tr.	Eg.		21	3		I.	Sh.	Eg.		10	46		I.	Tr.	In.
6	1	11	49	I.	Ec.	Dis.		22	4		I.	Tr.	Eg.		11	54		I.	Sh.	Eg.
	1	58		II.	Sh.	In.	16	16	2	7	I.*	Ec.	Dis.		13	2		I.	Tr.	Eg.
	3	43		II.	Tr.	In.		17	48		II.	Sh.	In.	27	6	52	19	I.	Ec.	Dis.
	4	11	13	III.	Ec.	Dis.		19	17		I.	Oc.	Re.		9	39		II.	Sh.	In.
	4	19		I.	Oc.	Re.		19	50		II.	Tr.	In.		10	14		I.	Oc.	Re.
	4	42		II.	Sh.	Eg.		20	34		II.	Sh.	Eg.		11	54		II.	Tr.	In.
	6	30		II.	Tr.	Eg.		22	15		III.	Sh.	In.		12	25		II.	Sh.	Eg.
	6	36	39	III.	Ec.	Re.		22	37		II.	Tr.	Eg.		14	42		II.*	Tr.	Eg.
	7	41		III.	Oc.	Dis.	17	0	52		III.	Sh.	Eg.		16	7	21	III.*	Ec.	Dis.
	10	26		III.	Oc.	Re.		2	21		III.	Tr.	In.		18	36	59	III.	Ec.	Re.
	22	25		I.	Sh.	In.		5	9		III.	Tr.	Eg.		20	36		III.	Oc.	Dis.
	23	19		I.	Tr.	In.		13	16		I.	Sh.	In.		23	26		III.	Oc.	Re.
7	0	40		I.	Sh.	Eg.		14	18		I.*	Tr.	In.	28	4	7		I.	Sh.	In.
	1	35		I.	Tr.	Eg.		15	31		I.*	Sh.	Eg.		5	16		I.	Tr.	In.
	19	40	12	I.	Ec.	Dis.		16	34		I.*	Tr.	Eg.		6	22		I.	Sh.	Eg.
	20	41	39	II.	Ec.	Dis.	18	10	30	31	I.	Ec.	Dis.		7	32		I.	Tr.	Eg.
	22	49		I.	Oc.	Re.		12	37	24	II.	Ec.	Dis.	29	1	20	40	I.	Ec.	Dis.
8	1	20		II.	Oc.	Re.		13	47		I.	Oc.	Re.		4	31	49	II.	Ec.	Dis.
	16	53		I.	Sh.	In.		17	31		II.	Oc.	Re.		4	44		I.	Oc.	Re.
	17	49		I.	Tr.	In.	19	7	44		I.	Sh.	In.		9	39		II.	Oc.	Re.
	19	8		I.	Sh.	Eg.		8	48		I.	Tr.	In.		22	36		I.	Sh.	In.
	20	5		I.	Tr.	Eg.		10	0		I.	Sh.	Eg.		23	45		I.	Tr.	In.
9	14	8	36	I.*	Ec.	Dis.		11	4		I.	Tr.	Eg.	30	0	51		I.	Sh.	Eg.
	15	14		II.*	Sh.	In.	20	4	58	52	I.	Ec.	Dis.		2	1		I.	Tr.	Eg.
	17	6		II.	Tr.	In.		7	5		II.	Sh.	In.		19	49	1	I.	Ec.	Dis.
	17	18		I.	Oc.	Re.		8	16		I.	Oc.	Re.		22	56		II.	Sh.	In.
	17	59		II.	Sh.	Eg.		9	11		II.	Tr.	In.		23	13		I.	Oc.	Re.
	18	16		III.	Sh.	In.		9	51		II.	Sh.	Eg.	31	1	14		II.	Tr.	In.
	19	53		II.	Tr.	Eg.		11	59		II.	Tr.	Eg.		1	42		II.	Sh.	Eg.
	20	52		III.	Sh.	Eg.		12	8	59	III.	Ec.	Dis.		4	2		II.	Tr.	Eg
	22	2		III.	Tr.	In.		14	37	14	III.*	Ec.	Re.		6	13		III.	Sh.	In.
10	0	48		III.	Tr.	Eg.		16	20		III.*	Oc.	Dis.		8	53		III.	Sh.	Eg.
	11	22		I.	Sh.	In.		19	9		III.	Oc.	Re.		10	54		III.	Tr.	In.
	12	19		I.	Tr.	In.	21	2	13		I.	Sh.	In.		13	46		III.*	Tr.	Eg.
	13	37		I.	Sh.	Eg.		3	17		I.	Tr.	In.		17	4		I.	Sh.	In.
	14	34		I.*	Tr.	Eg.		4	28		I.	Sh.	Eg.		18	15		I.	Tr.	In.
11	8	37	0	I.	Ec.	Dis.		5	33		I.	Tr.	Eg.		19	19		I.	Sh.	Eg.
	10	0	38	II.	Ec.	Dis.		23	27	14	I.	Ec.	Dis.		20	31		I.	Tr.	Eg.
	11	48		I.	Oc.	Re.	22	1	55	13	II.	Ec.	Dis.							

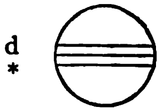
NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse. Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

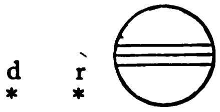
AUGUST.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

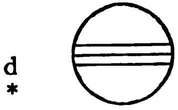
I.



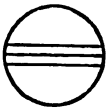
III.



II.



IV. No Eclipse.



Configurations at 15h 30m for an Inverting Telescope.

Day.	West.		East.
1		4· ○	1· ·2 3·
2	○ 2· 4·	○	3· ·1
3	4· 3· ·2 1·	○	
4	4· ·3	○	·2 ·1
5	4· ·3 1·	○	2·
6	·4 2·	○	·3 1·
7	·4 ·1 ·2	○	·3
8	·4	○	1· ·2 3·
9	·4	○	2· 3· ·1 ●
10	3· 2· 1·	○	·4
11	3·	○	·2 ·1 ·4
12	·3 1·	○	2· ·4
13	2·	○	·3 ·1 ·4
14	·2 ·1	○	·3 4·
15		○	1· ·2 3· 4·
16	·1	○	2· 3· 4·
17	○ 1· 2· 3·	○	4·
18	3· 4·	○	·1 ·2 ●
19	4· ·3 1·	○	2·
20	4· 2· ·3	○	·1
21	4· ·2 ·1	○	·3
22	4·	○	1· ·2 3·
23	·4 ·1	○	2· 3·
24	·4 2· 3·	○	1·
25	3· ·4	○	·1 ● ·2 ●
26	·3 1· ·4	○	·2
27	·3 2·	○	·1 ·4
28	·2 1·	○	·3 ·4
29		○	1· ·2 ·3 ·4
30	·1	○	2· 3· ·4
31	2· 3·	○	1· 4·

WASHINGTON MEAN TIME.

SEPTEMBER.

d	h	m	s			
1	14	17	24	I.*	Ec.	Dis.
	17	42		I.	Oc.	Re.
	17	50	34	II.	Ec.	Dis.
	23	2		II.	Oc.	Re.
2	11	32		I.	Sh.	In.
	12	44		I.	Tr.	In.
	13	48		I.*	Sh.	Eg.
	15	0		I.*	Tr.	Eg.
3	8	45	44	I.	Ec.	Dis.
	12	12		I.	Oc.	Re.
	12	13		II.	Sh.	In.
	14	35		II.*	Tr.	In.
	14	59		II.*	Sh.	Eg.
	17	23		II.	Tr.	Eg.
	20	5	33	III.	Ec.	Dis.
	22	36	33	III.	Ec.	Re.
4	0	49		III.	Oc.	Dis.
	3	41		III.	Oc.	Re.
	6	1		I.	Sh.	In.
	7	13		I.	Tr.	In.
	8	16		I.	Sh.	Eg.
	9	30		I.	Tr.	Eg.
5	3	14	5	I.	Ec.	Dis.
	6	41		I.	Oc.	Re.
	7	8	18	II.	Ec.	Dis.
	12	23		II.	Oc.	Re.
6	0	30		I.	Sh.	In.
	1	43		I.	Tr.	In.
	2	45		I.	Sh.	Eg.
	3	59		I.	Tr.	Eg.
	21	42	25	I.	Ec.	Dis.
7	1	10		I.	Oc.	Re.
	1	30		II.	Sh.	In.
	3	55		II.	Tr.	In.
	4	16		II.	Sh.	Eg.
	6	43		II.	Tr.	Eg.
	10	12		III.	Sh.	In.
	12	53		III.*	Sh.	Eg.
	15	7		III.*	Tr.	In.
	17	59		III.	Tr.	Eg.
	18	58		I.	Sh.	In.
	20	12		I.	Tr.	In.
	21	14		I.	Sh.	Eg.
	22	28		I.	Tr.	Eg.
8	16	10	48	I.*	Ec.	Dis.
	19	39		I.	Oc.	Re.
	20	26	58	II.	Ec.	Dis.
9	1	45		II.	Oc.	Re.
	13	26		I.*	Sh.	In.
	14	41		I.*	Tr.	In.
	15	42		I.*	Sh.	Eg.
	16	57		I.*	Tr.	Eg.
10	10	39	7	I.	Ec.	Dis.
	14	8		I.*	Oc.	Re.
	14	46		II.*	Sh.	In.
	17	15		II.	Tr.	In.
	17	33		II.	Sh.	Eg.
	20	3		II.	Tr.	Eg.
11	0	3	42	III.	Ec.	Dis.
	2	36	4	III.	Ec.	Re.
	5	0		III.	Oc.	Dis.
	7	53		III.	Oc.	Re.
11	7	55		I.	Sh.	In.
	9	10		I.	Tr.	In.
	10	10		I.	Sh.	Eg.
	11	27		I.	Tr.	Eg.
12	5	7	27	I.	Ec.	Dis.
	8	37		I.	Oc.	Re.
	9	44	37	II.	Ec.	Dis.
	15	5		II.*	Oc.	Re.
13	2	23		I.	Sh.	In.
	3	39		I.	Tr.	In.
	4	39		I.	Sh.	Eg.
	5	56		I.	Tr.	Eg.
	23	35	47	I.	Ec.	Dis.
14	3	6		I.	Oc.	Re.
	4	3		II.	Sh.	In.
	6	34		II.	Tr.	In.
	6	50		II.	Sh.	Eg.
	9	23		II.	Tr.	Eg.
	14	11		III.*	Sh.	In.
	16	54		III.*	Sh.	Eg.
	19	16		III.	Tr.	In.
	20	52		I.	Sh.	In.
	22	8		I.	Tr.	In.
	22	10		III.	Tr.	Eg.
	23	8		I.	Sh.	Eg.
15	0	25		I.	Tr.	Eg.
	18	4	10	I.	Ec.	Dis.
	21	35		I.	Oc.	Re.
	23	3	12	II.	Ec.	Dis.
16	4	26		II.	Oc.	Re.
	15	20		I.*	Sh.	In.
	16	37		I.*	Tr.	In.
	17	36		I.	Sh.	Eg.
	18	54		I.	Tr.	Eg.
17	12	32	29	I.*	Ec.	Dis.
	16	4		I.*	Oc.	Re.
	17	20		II.	Sh.	In.
	19	53		II.	Tr.	In.
	20	7		II.	Sh.	Eg.
	22	42		II.	Tr.	Eg.
18	4	1	56	III.	Ec.	Dis.
	6	35	41	III.	Ec.	Re.
	9	7		III.	Oc.	Dis.
	9	49		I.	Sh.	In.
	11	6		I.	Tr.	In.
	12	1		III.*	Oc.	Re.
	12	4		I.*	Sh.	Eg.
	13	23		I.*	Tr.	Eg.
19	7	0	49	I.	Ec.	Dis.
	10	33		I.	Oc.	Re.
	12	20	50	II.*	Ec.	Dis.
	17	46		II.	Oc.	Re.
20	4	17		I.	Sh.	In.
	5	35		I.	Tr.	In.
	6	33		I.	Sh.	Eg.
	7	52		I.	Tr.	Eg.
21	1	29	8	I.	Ec.	Dis.
	5	1		I.	Oc.	Re.
	6	37		II.	Sh.	In.
	9	12		II.	Tr.	In.
	9	24		II.	Sh.	Eg.
21	12	1		II.*	Tr.	Eg.
	18	10		III.	Sh.	In.
	20	54		III.	Sh.	Eg.
	22	46		I.	Sh.	In.
	23	22		III.	Tr.	In.
22	0	4		I.	Tr.	In.
	1	2		I.	Sh.	Eg.
	2	18		III.	Tr.	Eg.
	2	20		I.	Tr.	Eg.
	19	57	31	I.	Ec.	Dis.
	23	30		I.	Oc.	Re.
23	1	39	18	II.	Ec.	Dis.
	7	5		II.	Oc.	Re.
	17	14		I.*	Sh.	In.
	18	33		I.	Tr.	In.
	19	30		I.	Sh.	Eg.
	20	49		I.	Tr.	Eg.
24	14	25	50	I.*	Ec.	Dis.
	17	59		I.	Oc.	Re.
	19	54		II.	Sh.	In.
	22	30		II.	Tr.	In.
	22	41		II.	Sh.	Eg.
25	1	19		II.	Tr.	Eg.
	8	0	46	III.	Ec.	Dis.
	10	35	53	III.	Ec.	Re.
	11	43		I.*	Sh.	In.
	13	1		I.*	Tr.	In.
	13	11		III.*	Oc.	Dis.
	13	58		I.*	Sh.	Eg.
	15	18		I.*	Tr.	Eg.
	16	7		III.*	Oc.	Re.
26	8	54	11	I.	Ec.	Dis.
	12	27		I.*	Oc.	Re.
	14	56	53	II.*	Ec.	Dis.
	20	24		II.	Oc.	Re.
27	6	11		I.	Sh.	In.
	7	30		I.	Tr.	In.
	8	27		I.	Sh.	Eg.
	9	47		I.	Tr.	Eg.
28	3	22	30	I.	Ec.	Dis.
	6	56		I.	Oc.	Re.
	9	11		II.	Sh.	In.
	11	48		II.*	Tr.	In.
	11	58		II.*	Sh.	Eg.
	14	37		II.*	Tr.	Eg.
	22	8		III.	Sh.	In.
29	0	40		I.	Sh.	In.
	0	53		III.	Sh.	Eg.
	1	59		I.	Tr.	In.
	2	55		I.	Sh.	Eg.
	3	24		III.	Tr.	In.
	4	15		I.	Tr.	Eg.
	6	21		III.	Tr.	Eg.
	21	50	53	I.	Ec.	Dis.
30	1	24		I.	Oc.	Re.
	4	15	16	II.	Ec.	Dis.
	9	43		II.	Oc.	Re.
	19	8		I.	Sh.	In.
	20	27		I.	Tr.	In.
	21	24		I.	Sh.	Eg.
	22	44		I.	Tr.	Eg.

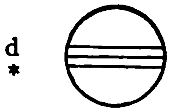
NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

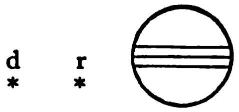
SEPTEMBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

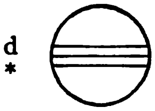
I.



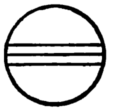
III.



II.



IV. No Eclipse.



Configurations at $14^h\ 30^m$ for an Inverting Telescope.

Day.	West.		East.
1	3· ·2	○	4· ·1 ●
2	○ 1· ·3	○	·2 4·
3	·3	○	2· ·1 4·
4	·2 1· 4·	○	·3
5	4·	○	·2 ·1 ·3
6	4· ·1	○	2· 3·
7	4· 2·	○$^{3\cdot}$	1·
8	·4 3· ·2 ·1	○	
9	·4 ·3	○$^{1\cdot}$	·2
10	·4 ·3	○	2· ·1
11	2· ·4 1·	○	·3
12	·4	○	·1 ·3 ·2 ●
13	·1	○	2· ·4 3·
14	2·	○	3· 1· ·4
15	·2 ·1 3·	○	·4
16	3·	○	1· ·2 ·4
17	·3	○	2· 4· ·1 ●
18	2· 1·	○	·3 4·
19		○	·1 4· ·3 ·2 ●
20	1·	○	4· 2· 3·
21	4· 2·	○	3· 1·
22	4· 3· ·2 ·1	○	
23	4· 3·	○	1· ·2
24	4· ·3	○	2· ·1 ●
25	○ 1··4 2·	○	·3 ●
26	·4 ·2	○	·1 ·3
27	·4 1·	○	·2 3·
28	○ 2· ·4	○	3· ·1
29	·2 3· ·1	○$_{\cdot 4}$	
30	3·	○	1· ·2 ·4

WASHINGTON MEAN TIME.

OCTOBER.

d	h	m	s			
1	16	19	12	I.*	Ec.	Dis.
	19	53		I.	Oc.	Re.
	22	28		II.	Sh.	In.
2	1	5		II.	Tr.	In.
	1	15		II.	Sh.	Eg.
	3	54		II.	Tr.	Eg.
	11	59	14	III.*	Ec.	Dis.
	13	36		I.*	Sh.	In.
	14	35	41	III.*	Ec.	Re.
	14	56		I.*	Tr.	In.
	15	52		I.*	Sh.	Eg.
	17	11		III.*	Oc.	Dis.
	17	12		I.*	Tr.	Eg.
	20	8		III.	Oc.	Re.
3	10	47	33	I.	Ec.	Dis.
	14	21		I.*	Oc.	Re.
	17	32	48	II.*	Ec.	Dis.
	23	0		II.	Oc.	Re.
4	8	5		I.	Sh.	In.
	9	24		I.	Tr.	In.
	10	21		I.	Sh.	Eg.
	11	41		I.*	Tr.	Eg.
5	5	15	52	I.	Ec.	Dis.
	8	49		I.	Oc.	Re.
	11	45		II.*	Sh.	In.
	14	22		II.*	Tr.	In.
	14	32		II.*	Sh.	Eg.
	17	12		II.*	Tr.	Eg.
6	2	6		III.	Sh.	In.
	2	33		I.	Sh.	In.
	3	52		I.	Tr.	In.
	4	49		I.	Sh.	Eg.
	4	53		III.	Sh.	Eg.
	6	9		I.	Tr.	Eg.
	7	22		III.	Tr.	In.
	10	20		III.	Tr.	Eg.
	23	44	16	I.	Ec.	Dis.
7	3	18		I.	Oc.	Re.
	6	51	4	II.	Ec.	Dis.
	12	18		II.*	Oc.	Re.
	21	2		I.	Sh.	In.
	22	1		IV.	Tr.	In.
	22	20		I.	Tr.	In.
	22	27		IV.	Tr.	Eg.
	23	18		I.	Sh.	Eg.
8	0	37		I.	Tr.	Eg.
	18	12	36	I.	Ec.	Dis.
	21	46		I.	Oc.	Re.
9	1	2		II.	Sh.	In.
	3	38		II.	Tr.	In.
	3	50		II.	Sh.	Eg.
	6	28		II.	Tr.	Eg.
	15	30		I.*	Sh.	In.
	15	58	3	III.*	Ec.	Dis.
	16	48		I.*	Tr.	In.
	17	46		I.	Sh.	Eg.
	18	35	50	III.	Ec.	Re.
	19	5		I.	Tr.	Eg.
	21	8		III.	Oc.	Dis.
10	0	6		III.	Oc.	Re.
	12	40	57	I.*	Ec.	Dis.
	16	14		I.*	Oc.	Re.
	20	8	34	II.	Ec.	Dis.
11	1	35		II.	Oc.	Re.
	9	58		I.	Sh.	In.
	11	17		I.*	Tr.	In.
11	12	14		I.*	Sh.	Eg.
	13	33		I.*	Tr.	Eg.
12	7	9	16	I.	Ec.	Dis.
	10	42		I.*	Oc.	Re.
	14	19		II.*	Sh.	In.
	16	54		II.*	Tr.	In.
	17	7		II.*	Sh.	Eg.
	19	44		II.	Tr.	Eg.
13	4	27		I.	Sh.	In.
	5	45		I.	Tr.	In.
	6	5		III.	Sh.	In.
	6	43		I.	Sh.	Eg.
	8	1		I.	Tr.	Eg.
	8	53		III.	Sh.	Eg.
	11	16		III.*	Tr.	In.
	14	15		III.*	Tr.	Eg.
14	1	37	41	I.	Ec.	Dis.
	5	10		I.	Oc.	Re.
	9	26	44	II.	Ec.	Dis.
	14	51		II.*	Oc.	Re.
	22	55		I.	Sh.	In.
15	0	13		I.	Tr.	In.
	1	11		I.	Sh.	Eg.
	2	29		I.	Tr.	Eg.
	20	6	1	I.	Ec.	Dis.
	23	38		I.	Oc.	Re.
16	3	37		II.	Sh.	In.
	6	10		II.	Tr.	In.
	6	16		IV.	Oc.	Dis.
	6	24		II.	Sh.	Eg.
	7	3		IV.	Oc.	Re.
	9	0		II.	Tr.	Eg.
	17	24		I.*	Sh.	In.
	18	40		I.	Tr.	In.
	19	40		I.	Sh.	Eg.
	19	56	18	III.	Ec.	Dis.
	20	57		I.	Tr.	Eg.
	22	35	24	III.	Ec.	Re.
17	0	59		III.	Oc.	Dis.
	3	58		III.	Oc.	Re.
	14	34	23	I.*	Ec.	Dis.
	18	6		I.	Oc.	Re.
	22	44	12	II.	Ec.	Dis.
18	4	6		II.	Oc.	Re.
	11	52		I.*	Sh.	In.
	13	8		I.*	Tr.	In.
	14	8		I.*	Sh.	Eg.
	15	25		I.*	Tr.	Eg.
19	9	2	43	I.	Ec.	Dis.
	12	33		I.*	Oc.	Re.
	16	54		II.*	Sh.	In.
	19	25		II.	Tr.	In.
	19	42		II.	Sh.	Eg.
	22	15		II.	Tr.	Eg.
20	6	20		I.	Sh.	In.
	7	36		I.	Tr.	In.
	8	37		I.	Sh.	Eg.
	9	53		I.	Tr.	Eg.
	10	4		III.*	Sh.	In.
	12	53		III.*	Sh.	Eg.
	15	6		III.*	Tr.	In.
	18	5		III.	Tr.	Eg.
21	3	31	8	I.	Ec.	Dis.
	7	1		I.	Oc.	Re.
	12	2	16	II.*	Ec.	Dis.
	17	21		II.*	Oc.	Re.
22	0	49		I.	Sh.	In.
	2	4		I.	Tr.	In.
	3	5		I.	Sh.	Eg.
	4	21		I.	Tr.	Eg.
	21	59	28	I.	Ec.	Dis.
23	1	29		I.	Oc.	Re.
	6	11		II.	Sh.	In.
	8	39		II.	Tr.	In.
	8	59		II.	Sh.	Eg.
	11	29		II.*	Tr.	Eg.
	19	17		I.	Sh.	In.
	20	31		I.	Tr.	In.
	21	34		I.	Sh.	Eg.
	22	48		I.	Tr.	Eg.
	23	54	26	III.	Ec.	Dis.
24	2	34	50	III.	Ec.	Re.
	4	46		III.	Oc.	Dis.
	7	45		III.	Oc.	Re.
	15	1		IV.*	Tr.	In.
	15	59		IV.*	Tr.	Eg.
	16	27	52	I.*	Ec.	Dis.
	19	56		I.	Oc.	Re.
25	1	19	42	II.	Ec.	Dis.
	6	36		II.	Oc.	Re.
	13	46		I.*	Sh.	In.
	14	59		I.*	Tr.	In.
	16	2		I.*	Sh.	Eg.
	17	16		I.*	Tr.	Eg.
26	10	56	12	I.*	Ec.	Dis.
	14	24		I.*	Oc.	Re.
	19	28		II.	Sh.	In.
	21	53		II.	Tr.	In.
	22	16		II.	Sh.	Eg.
27	0	43		II.	Tr.	Eg.
	8	14		I.	Sh.	In.
	9	27		I.	Tr.	In.
	10	31		I.*	Sh.	Eg.
	11	44		I.*	Tr.	Eg.
	14	2		III.*	Sh.	In.
	16	53		III.*	Sh.	Eg.
	18	51		III.	Tr.	In.
	21	51		III.	Tr.	Eg.
28	5	24	38	I.	Ec.	Dis.
	8	51		I.	Oc.	Re.
	14	37	40	II.*	Ec.	Dis.
	19	49		II.	Oc.	Re.
29	2	43		I.	Sh.	In.
	3	54		I.	Tr.	In.
	4	59		I.	Sh.	Eg.
	6	11		I.	Tr.	Eg.
	23	53	0	I.	Ec.	Dis.
30	3	18		I.	Oc.	Re.
	8	46		II.	Sh.	In.
	11	6		II.*	Tr.	In.
	11	34		II.*	Sh.	Eg.
	13	56		II.*	Tr.	Eg.
	21	11		I.	Sh.	In.
	22	21		I.	Tr.	In.
	23	27		I.	Sh.	Eg.
31	0	38		I.	Tr.	Eg.
	3	52	38	III.	Ec.	Dis.
	6	34	22	III.	Ec.	Re.
	8	28		III.	Oc.	Dis.
	11	28		III.*	Oc.	Re.
	18	21	25	I.	Ec.	Dis.
	21	46		I.	Oc.	Re.

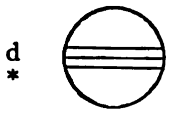
NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec. eclipse
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

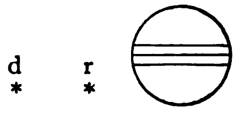
OCTOBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

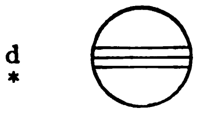
I.



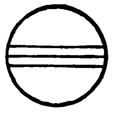
III.



II.



IV. No Eclipse.



Configurations at 14^h 0^m for an Inverting Telescope.

Day.	West.		East.
1	·3 ·1	○	2· ·4
2	2·	○	1· ·4 ·3●
3	·2	○	·3 ·4·1●
4	1·	○	·2 3· 4·
5		○	2· ·1 3· 4·
6	·2 1· 3·	○	4·
7	3·	○	4· ·2 1·
8	·3 4· ·1	○	2·
9	4· 2· ·3	○	1·
10	4· ·2	○	·3 ·1●
11	4· 1·	○	·2 ·3
12	·4	○	2· ·1 3·
13	○ 3· ·4 2· 1·	○	
14	·4 3·	○	·1 ·2●
15	·3 ·4 ·1	○	2·
16	·3 2·	○	·41·
17	·2 ·1	○	·3 ·4
18	○ 1·	○	·2 ·3 ·4
19		○	·1 2· 3· ·4
20	2· 1·	○ 3·	4·
21	3·	○	·1 4· ·2●
22	·3 ·1	○	2· 4·
23	·3 2·	○	1· 4·
24	·2 ·1 4·	○	·3
25	4·	○	1· ·2 ·3
26	4·	○	2· 3· ·1●
27	4· 2· 1·	○	3·
28	4· 3·	○	·2 ·1
29	·4 3· 1·	○	·2
30	·4 ·3 2·	○	1·
31	·4 ·2 ·1	○	·3

WASHINGTON MEAN TIME.

NOVEMBER.

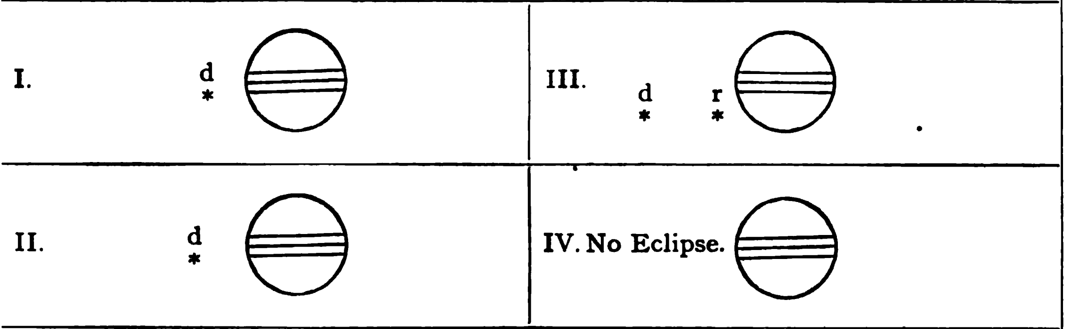
d	h	m	s			
1	3	55	4	II.	Ec.	Dis.
	9	2		II.	Oc.	Re.
	15	40		I.*	Sh.	In.
	16	49		I.*	Tr	In.
	17	56		I.*	Sh.	Eg.
	19	6		I.	Tr.	Eg.
	22	56		IV.	Oc.	Dis.
2	0	0		IV.	Oc.	Re.
	12	49	46	I.*	Ec.	Dis.
	16	13		I.*	Oc.	Re.
	22	3		II.	Sh.	In.
3	0	19		II.	Tr.	In.
	0	51		II.	Sh.	Eg.
	3	9		II.	Tr.	Eg.
	10	8		I.*	Sh.	In.
	11	16		I.*	Tr.	In.
	12	24		I.*	Sh.	Eg.
	13	33		I.*	Tr.	Eg.
	18	1		III.*	Sh.	In.
	20	53		III.	Sh	Eg.
	22	32		III.	Tr.	In.
4	1	32		III.	Tr.	Eg.
	7	18	14	I.	Ec.	Dis.
	10	40		I.*	Oc.	Re.
	17	12	57	II.*	Ec.	Dis.
	22	15		II.	Oc.	Re.
5	4	36		I.	Sh.	In.
	5	43		I.	Tr.	In.
	6	53		I.	Sh.	Eg.
	8	0		I.	Tr.	Eg.
6	1	46	36	I.	Ec.	Dis.
	5	7		I.	Oc.	Re.
	11	20		II.*	Sh.	In.
	13	32		II.*	Tr.	In.
	14	9		II.*	Sh.	Eg.
	16	22		II.*	Tr.	Eg.
	23	5		I.	Sh.	In.
7	0	10		I.	Tr.	In.
	1	21		I.	Sh.	Eg.
	2	27		I.	Tr.	Eg.
	7	51	2	III.	Ec.	Dis.
	10	34	3	III.*	Ec.	Re.
	12	6		III.*	Oc.	Dis.
	15	6		III.*	Oc.	Re.
	20	15	2	I.	Ec.	Dis.
	23	34		I.	Oc.	Re.
8	6	30	20	II.	Ec.	Dis.
	11	26		II.*	Oc.	Re.
	17	33		I.*	Sh.	In.
	18	37		I.	Tr.	In.
	19	50		I.	Sh.	Eg.
	20	54		I.	Tr.	Eg.
9	14	43	25	I.*	Ec.	Dis.
	18	1		I.*	Oc.	Re.
10	0	38		II.	Sh.	In.
	2	43		II.	Tr.	In.
	3	26		II.	Sh.	Eg.
	5	33		II.	Tr.	Eg.
	7	11		IV.	Tr.	In.
	8	22		IV.	Tr.	Eg.
	12	2		I.*	Sh.	In.
	13	4		I.*	Tr.	In.
	14	18		I.*	Sh.	Eg.
	15	21		I.*	Tr.	Eg.
10	22	0		III.	Sh.	In.
11	0	53		III.	Sh.	Eg.
	2	7		III.	Tr.	In.
	5	7		III.	Tr.	Eg.
	9	11	54	I.*	Ec.	Dis.
	12	28		I.*	Oc.	Re.
	19	48	7	II.	Ec.	Dis.
12	0	38		II.	Oc.	Re.
	6	30		I.	Sh.	In.
	7	31		I.	Tr.	In.
	8	47		I.*	Sh.	Eg.
	9	48		I.*	Tr.	Eg.
13	3	40	18	I.	Ec.	Dis.
	6	55		I.	Oc.	Re.
	13	55		II.*	Sh.	In.
	15	54		II.*	Tr.	In.
	16	44		II.*	Sh.	Eg.
	18	44		II.	Tr.	Eg.
14	0	59		I.	Sh.	In.
	1	58		I.	Tr.	In.
	3	15		I.	Sh.	Eg.
	4	15		I.	Tr.	Eg.
	11	50	8	III.*	Ec.	Dis.
	14	34	26	III.*	Ec.	Re.
	15	39		III.*	Oc.	Dis
	18	40		III.	Oc.	Re.
	22	8	46	I.	Ec.	Dis.
15	1	21		I.	Oc.	Re.
	9	5	30	II.*	Ec.	Dis.
	13	48		II.*	Oc.	Re.
	19	27		I.	Sh.	In.
	20	24		I.	Tr.	In.
	21	44		I.	Sh.	Eg.
	22	41		I.	Tr.	Eg.
16	16	37	10	I.*	Ec.	Dis.
	19	48		I.	Oc.	Re.
17	3	13		II.	Sh.	In.
	5	5		II.	Tr.	In.
	6	2		II.	Sh.	Eg.
	7	55		II.	Tr.	Eg.
	13	56		I.*	Sh.	In.
	14	51		I.*	Tr.	In.
	16	12		I.*	Sh.	Eg.
	17	8		I.*	Tr.	Eg.
18	1	58		III.	Sh.	In.
	4	53		III.	Sh.	Eg.
	5	37		III.	Tr.	In.
	8	38		III.*	Tr.	Eg.
	11	5	40	I.*	Ec.	Dis.
	14	15		I.*	Oc.	Re.
	14	35		IV.*	Oc.	Dis.
	15	52		IV.*	Oc.	Re.
	22	23	12	II.	Ec.	Dis.
19	2	58		II.	Oc.	Re.
	8	24		I.*	Sh.	In.
	9	17		I.*	Tr.	In.
	10	41		I.*	Sh.	Eg.
	11	34		I.*	Tr.	Eg.
20	5	34	6	I.	Ec.	Dis.
	8	41		I.*	Oc.	Re.
	16	31		II.*	Sh.	In.
	18	15		II.*	Tr.	In.
	19	19		II.	Sh.	Eg.
	21	5		II.	Tr.	Eg.
21	2	52		I.	Sh.	In.
	3	44		I.	Tr.	In.
	5	9		I.	Sh.	Eg.
	6	1		I.	Tr.	Eg.
	15	48	54	III.*	Ec.	Dis.
	18	34	30	III.	Ec.	Re.
	19	8		III.	Oc.	Dis.
	22	8		III.	Oc.	Re.
22	0	2	36	I.	Ec.	Dis.
	3	8		I.	Oc.	Re.
	11	40	34	II.*	Ec.	Dis.
	16	8		II.*	Oc.	Re.
	21	21		I.	Sh.	In.
	22	10		I.	Tr.	In.
	23	38		I.	Sh.	Eg.
23	0	27		I.	Tr.	Eg.
	18	31	1	I.	Ec.	Dis.
	21	34		I.	Oc.	Re.
24	5	48		II.	Sh.	In.
	7	24		II.	Tr.	In.
	8	37		II.*	Sh.	Eg.
	10	14		II.*	Tr.	Eg.
	15	49		I.*	Sh.	In.
	16	37		I.*	Tr.	In.
	18	6		I.*	Sh.	Eg.
	18	54		I.	Tr.	Eg.
25	5	56		III.	Sh.	In.
	8	52		III.*	Sh.	Eg.
	9	3		III.*	Tr.	In.
	12	4		III.*	Tr.	Eg.
	12	59	34	I.*	Ec.	Dis.
	16	1		I.*	Oc.	Re.
26	0	58	13	II.	Ec.	Dis.
	5	17		II.	Oc.	Re.
	10	18		I.*	Sh.	In.
	11	3		I.*	Tr.	In.
	12	34		I.*	Sh.	Eg.
	13	20		I.*	Tr.	Eg.
	15	50		IV.*	Sh.	In.
	16	24		IV.*	Sh.	Eg.
	22	26		IV.	Tr.	In.
	23	44		IV.	Tr.	Eg.
27	7	28	1	I.*	Ec.	Dis.
	10	27		I.*	Oc.	Re.
	19	6		II.	Sh.	In.
	20	34		II.	Tr.	In.
	21	55		II.	Sh.	Eg.
	23	24		II.	Tr.	Eg.
28	4	46		I.	Sh.	In.
	5	29		I.	Tr.	In.
	7	3		I.	Sh.	Eg.
	7	46		I.*	Tr.	Eg.
	19	48	7	III.	Ec.	Dis.
29	1	33		III.	Oc.	Re.
	1	56	33	I.	Ec.	Dis.
	4	53		I.	Oc.	Re.
	14	15	35	II.*	Ec.	Dis.
	18	25		II.*	Oc.	Re.
	23	15		I.	Sh.	In.
	23	56		I.	Tr.	In.
30	1	32		I.	Sh.	Eg.
	2	13		I.	Tr.	Eg.
	20	25	0	I.	Ec.	Dis.
	23	20		I.	Oc.	Re.

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse. Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

NOVEMBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 13ʰ 30ᵐ for an Inverting Telescope.

Day.	West.		East.
1	•4	○	1• •2 •3
2		○	•4 2• 3• •1 ●
3	○ 1• 2•	○	3• •4
4	3• •2	○	•1 •4
5	3• 1•	○	•2 •4
6	•3	○	2• •1 4•
7	•2 •1	○	4• •3 ●
8		○	•2 1• •3 4•
9	•1	○	4• 2• 3•
10	○ 1• 2• 4•	○	3•
11	4• 3• •2	○	•1
12	4• 3• 1•	○	•2
13	4• •3	○	2• •1
14	•4 2• 1•	○	•3 ●
15	•4	○	1• •3 •2 ●
16	•4 •1	○	2• 3•
17	•4 2•	○	1• 3•
18	•2 3•	○ •4	•1 ●
19	3• 1•	○	•2 •4
20	•3	○	2• •1 •4
21	2• 1• •3	○	•4
22		○	1• •3 •4 •2 ●
23	•1	○	2• •3 4•
24	2•	○	1• 3• 4•
25	•2 3•	○	4• •1 ●
26	3• 1•	○	4• •2
27	•3 4•	○	•1 2•
28	4• 2• 1• •3	○	
29	4• •2	○	•1 •3
30	4• •1	○	•2 •3

WASHINGTON MEAN TIME.

DECEMBER.

d	h	m	s				d	h	m	s				d	h	m	s			
1	8	24		II.*	Sh.	In.	12	0	18		II.	Sh.	In.	22	2	7	49	I.	Ec.	Dis.
	9	42		II.*	Tr.	In.		1	6		II.	Tr.	In.		4	32		I.	Oc.	Re.
	11	13		II.*	Sh.	Eg.		3	7		II.	Sh.	Eg.		16	12		II.*	Sh.	In.
	12	32		II.*	Tr.	Eg.		3	56		II.	Tr.	Eg.		16	29		II.*	Tr.	In.
	17	43		I.*	Sh.	In.		8	34		I.*	Sh.	In.		19	2		II.	Sh.	Eg.
	18	22		I.*	Tr.	In.		8	58		I *	Tr.	In.		19	19		II.	Tr.	Eg.
	20	0		I.	Sh.	Eg.		10	51		I.*	Sh.	Eg.		23	25		I.	Sh.	In.
	20	39		I.	Tr.	Eg.		11	15		I.*	Tr.	Eg.		23	33		I.	Tr.	In.
2	9	55		III.*	Sh.	In.	13	3	45	37	III.	Ec.	Dis.	23	1	42		I.	Sh.	Eg.
	12	26		III.*	Tr.	In.		5	44	52	I.	Ec.	Dis.		1	50		I.	Tr.	Eg.
	12	52		III.*	Sh.	Eg.		8	11		III.*	Oc.	Re.		20	36	30	I.	Ec.	Dis.
	14	53	35	I.*	Ec.	Dis.		8	22		I.*	Oc.	Re.		21	53		III.	Sh.	In.
	15	26		III.*	Tr.	Eg.		9	34		IV.*	Sh.	In.		22	18		III.	Tr.	In.
	17	46		I.*	Oc.	Re.		10	48		IV.*	Sh.	Eg.		22	58		I.	Oc.	Re.
3	3	33	10	II.	Ec.	Dis.		12	54		IV.*	Tr.	In.	24	0	53		III.	Sh.	Eg.
	7	33		II.*	Oc.	Re.		14	17		IV.*	Tr.	Eg.		1	18		III.	Tr.	Eg.
	12	12		I.*	Sh.	In.		19	25	27	II.	Ec.	Dis.		11	17	48	II.*	Ec.	Dis.
	12	48		I.*	Tr.	In.		22	56		II.	Oc.	Re.		14	16		II.*	Oc.	Re.
	14	28		I.*	Sh.	Eg.	14	3	3		I.	Sh.	In.		17	54		I.*	Sh.	In.
	15	5		I.*	Tr.	Eg.		3	24		I.	Tr.	In.		17	59		I.*	Tr.	In.
4	9	22	4	I.*	Ec.	Dis.		5	20		I.	Sh.	Eg.		20	11		I.	Sh.	Eg.
	12	12		I.*	Oc.	Re.		5	41		I.	Tr.	Eg.		20	16		I.	Tr.	Eg.
	21	42		II.	Sh.	In.	15	0	13	24	I.	Ec.	Dis.	25	15	5	7	I.*	Ec.	Dis.
	22	51		II.	Tr.	In.		2	48		I.	Oc.	Re.		17	23		I.*	Oc.	Re.
5	0	15	41	IV.	Ec.	Dis.		13	36		II.*	Sh.	In.	26	5	31		II.	Sh.	In.
	0	31		II.	Sh.	Eg.		14	14		II.*	Tr.	In.		5	36		II.*	Tr.	In.
	0	57	45	IV.	Ec.	Re.		16	25		II.*	Sh.	Eg.		8	20		II.*	Sh.	Eg.
	1	41		II.	Tr.	Eg.		17	4		II.*	Tr.	Eg.		8	26		II.*	Tr.	Eg.
	5	23		IV.	Oc.	Dis.		21	31		I.	Sh.	In.		12	22		I.*	Sh.	In.
	6	40		I.	Sh.	In.		21	50		I.	Tr.	In.		12	25		I.*	Tr.	In.
	6	43		IV.	Oc.	Re.		23	48		I.	Sh.	Eg.		14	40		I.*	Sh.	Eg.
	7	14		I.*	Tr.	In.	16	0	7		I.	Tr.	Eg.		14	42		I.*	Tr.	Eg.
	8	57		I.*	Sh.	Eg.		17	53		III.*	Sh.	In.	27	9	32		I.*	Oc.	Dis.
	9	31		I.*	Tr.	Eg.		18	42	3	I.	Ec.	Dis.		11	43	45	III.*	Ec.	Dis.
	23	46	52	III.	Ec.	Dis.		19	2		III.	Tr.	In.		11	49		I.*	Oc.	Re.
6	3	50	38	I.	Ec.	Dis.		20	53		III.	Sh.	Eg.		14	42		III.*	Oc.	Re.
	4	54		III.	Oc.	Re.		21	14		I.	Oc.	Re.	28	0	32		II.	Oc.	Dis.
	6	38		I.	Oc.	Re.		22	2		III.	Tr.	Eg.		3	22		II.	Oc.	Re.
	16	50	32	II.*	Ec.	Dis.	17	8	42	56	II.*	Ec.	Dis.		6	50		I.*	Tr.	In.
	20	41		II.	Oc.	Re.		12	2		II.*	Oc.	Re.		6	51		I.*	Sh.	In.
7	1	9		I.	Sh.	In.		16	0		I.*	Sh.	In.		9	8		I.*	Tr.	Eg.
	1	40		I.	Tr.	In.		16	16		I.*	Tr.	In.		9	8		I.*	Sh.	Eg.
	3	26		I.	Sh.	Eg.		18	17		I.*	Sh.	Eg.	29	3	58		I.	Oc.	Dis.
	3	57		I.	Tr.	Eg.		18	32		I.*	Tr.	Eg.		6	15		I.*	Oc.	Re.
	22	19	8	I.	Ec.	Dis.	18	13	10	36	I.*	Ec.	Dis.		18	43		II.	Tr.	In.
8	1	4		I.	Oc.	Re.		15	40		I.*	Oc.	Re.		18	49		II.	Sh.	In.
	11	0		II.*	Sh.	In.	19	2	54		II.	Sh.	In.		21	33		II.	Tr.	Eg.
	11	59		II.*	Tr.	In.		3	21		II.	Tr.	In.		21	39		II.	Sh.	Eg.
	13	49		II.*	Sh.	Eg.		5	44		II.	Sh.	Eg.	30	1	16		I.	Tr.	In.
	14	49		II.*	Tr.	Eg.		6	11		II.*	Tr.	Eg.		1	20		I.	Sh.	In.
	19	37		I.	Sh.	In.		10	28		I.*	Sh.	In.		3	0		IV.	Tr.	In.
	20	6		I.	Tr.	In.		10	41		I.*	Tr.	In.		3	27		IV.	Sh.	In.
	21	54		I.	Sh.	Eg.		12	45		I.*	Sh.	Eg.		3	33		I.	Tr.	Eg.
	22	23		I.	Tr.	Eg.		12	58		I.*	Tr.	Eg.		3	37		I.	Sh.	Eg.
9	13	54		III.*	Sh.	In.	20	7	39	15	I.*	Ec.	Dis.		4	27		IV.*	Tr.	Eg.
	15	45		III.*	Tr.	In.		7	44	33	III.*	Ec.	Dis.		5	5		IV.	Sh.	Eg.
	16	47	44	I.*	Ec.	Dis.		10	6		I.*	Oc.	Re.		22	24		I.	Oc.	Dis.
	16	53		III.*	Sh.	Eg.		11	27		III.*	Oc.	Re.	31	0	43	55	I.	Ec.	Re.
	18	46		III.	Tr.	Eg.		22	0	20	II.	Ec.	Dis.		1	32		III.	Tr.	In.
	19	30		I.	Oc.	Re.	21	1	9		II.	Oc.	Re.		1	51		III.	Sh.	In.
10	6	8	4	II.	Ec.	Dis.		4	57		I.	Sh.	In.		4	32		III.	Tr.	Eg.
	9	48		II.*	Oc.	Re.		5	7		I.	Tr.	In.		4	53		III.	Sh.	Eg.
	14	6		I.*	Sh.	In.		7	14		I.*	Sh.	Eg.		13	38		II.*	Oc.	Dis.
	14	32		I.*	Tr.	In.		7	24		I.*	Tr.	Eg.		16	37	8	II.*	Ec.	Re.
	16	23		I.*	Sh.	Eg.		18	6	22	IV.*	Ec.	Dis.		19	42		I.	Tr.	In.
	16	49		I.*	Tr.	Eg.		19	22	38	IV.	Ec.	Re.		19	48		I.	Sh.	In.
11	11	16	16	I.*	Ec.	Dis.		19	33		IV.	Oc.	Dis.		21	59		I.	Tr.	Eg.
	13	56		I.*	Oc.	Re.		20	58		IV.	Oc.	Re.		22	5		I.	Sh.	Eg.

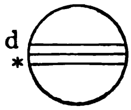
NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; *Visible at Washington.

WASHINGTON MEAN TIME.

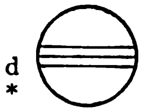
DECEMBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

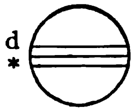
I.



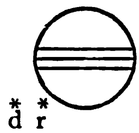
III.



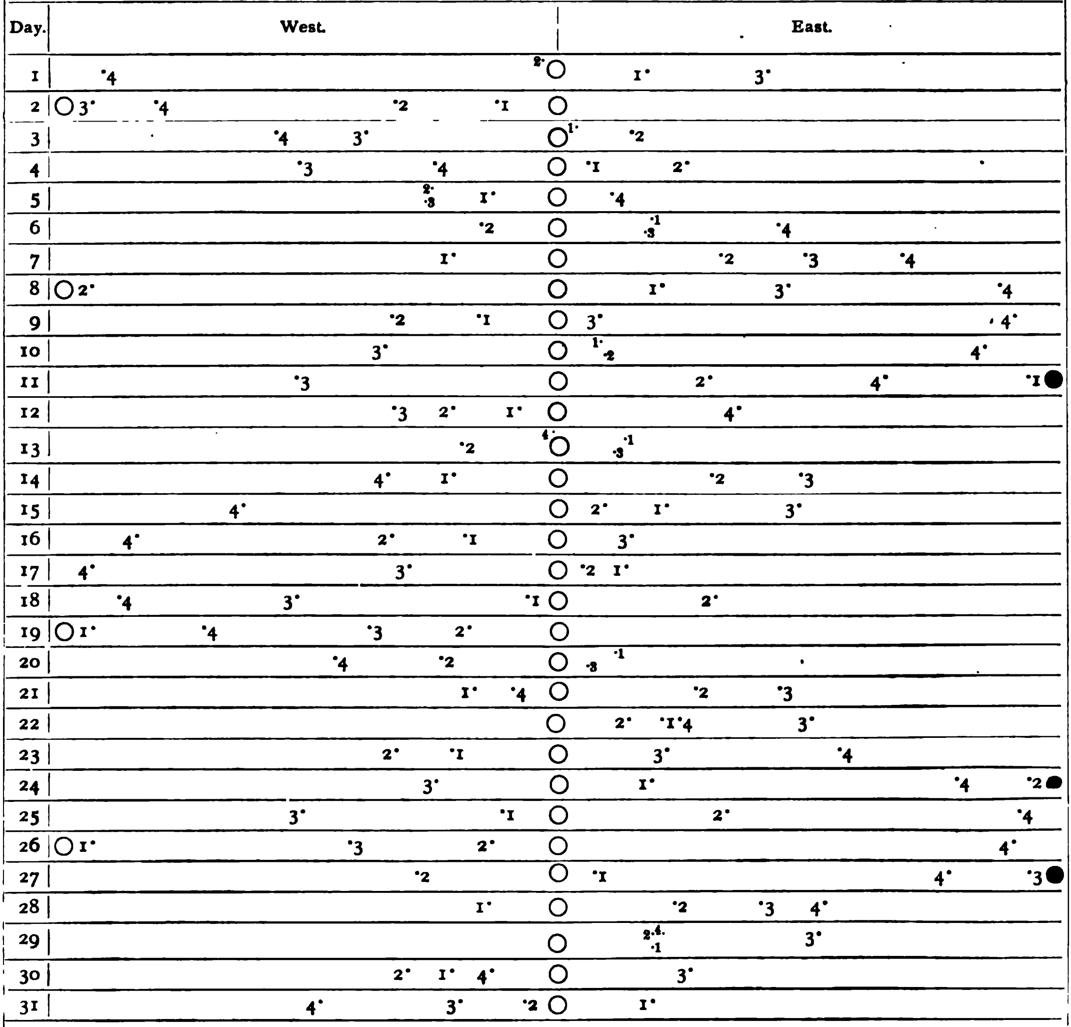
II.



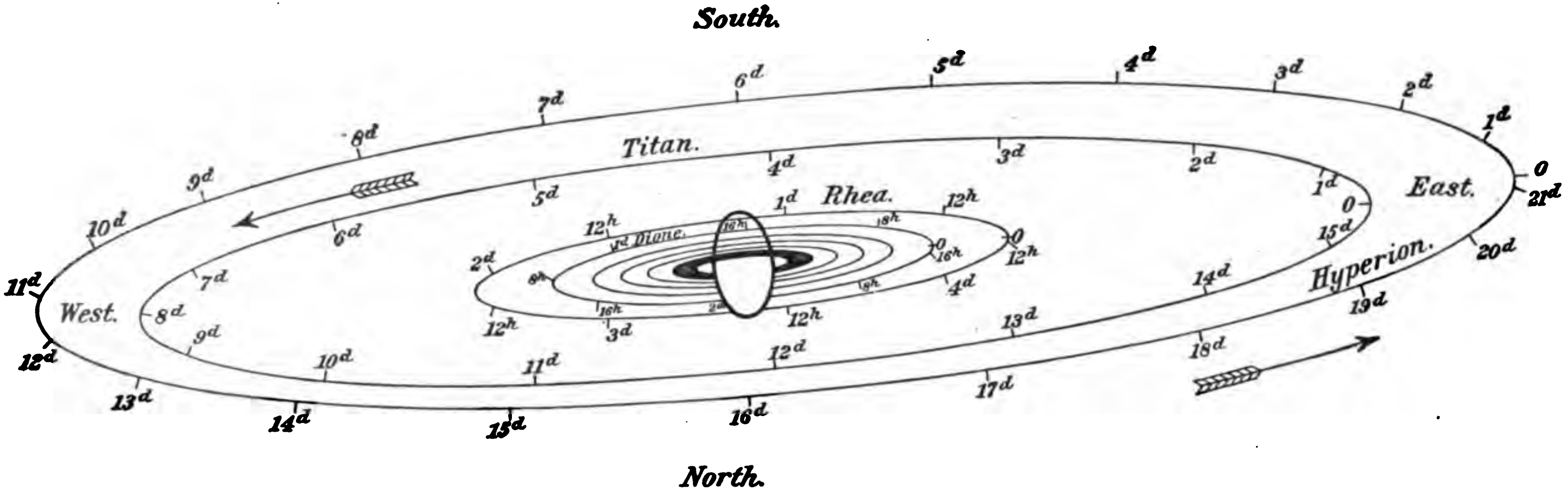
IV.



Configurations at 12ʰ 30ᵐ for an Inverting Telescope.



Day.	West.		East.
1	•4 2•	○	1• 3•
2	○ 3• •4 •2 •1	○	
3	•4 3•	○ 1•	•2
4	•3 •4	○	•1 2•
5	2• •3 1•	○	•4
6	•2	○	•1 •3 •4
7	1•	○	•2 •3 •4
8	○ 2•	○	1• 3• •4
9	•2 •1	○	3• 4•
10	3•	○	1• •2 4•
11	•3	○	2• 4• •1 ●
12	•3 2• 1•	○	4•
13	•2 4•	○	•1 •3
14	4• 1•	○	•2 •3
15	4•	○	2• 1• 3•
16	4• 2• •1	○	3•
17	4• 3•	○	•2 1•
18	•4 3• •1	○	2•
19	○ 1• •4 •3 2•	○	
20	•4 •2	○	•3 •1
21	1• •4	○	•2 •3
22		○	2• •1•4 3•
23	2• •1	○	3• •4
24	3•	○	1• •4 •2 ●
25	3• •1	○	2• •4
26	○ 1• •3 2•	○	4•
27	•2	○	•1 4• •3 ●
28	1•	○	•2 •3 4•
29		○	2•4• •1 3•
30	2• 1• 4•	○	3•
31	4• 3• •2	○	1•



Names of the Satellites.	
I.	Mimas,
II.	Enceladus.
III.	Tethys.
IV.	Dione.
V.	Rhea.
VI.	Titan.
VII.	Hyperion.
VIII.	Iapetus.

APPARENT ORBITS OF THE SEVEN INNER SATELLITES OF SATURN,

AT DATE OF OPPOSITION, SEPTEMBER 4, 1906,

AS SEEN IN AN INVERTING TELESCOPE.

Mean Synodic Periods.	d	h
I.	0	22.6
II.	1	8.9
III.	1	21.3
IV.	2	17.7
V.	4	12.5
VI.	15	23.3
VII.	21	7.6
VIII.	79	22.1

WASHINGTON MEAN TIME OF GREATEST ELONGATION, ETC.

In the diagram on the preceding page, the points of the orbits marked "*o*" are those of the eastern elongation, as seen in an inverting telescope. The times of these elongations may be found from the following tables, and the apparent position of a satellite at any other time may be marked on the diagram by setting off on the proper orbit the elapsed interval in days and hours since the last eastern elongation. Mimas can be seen only within a few hours of each elongation, and the time of every elongation visible at Washington is given; the time of any elongation not given in the tables may be readily found from those given by adding or subtracting the proper multiple of the mean synodic period. The following abbreviations are used in the tables:—

E., East Elongation,
I., Inferior Conjunction,
W., West Elongation,
S., Superior Conjunction.

MIMAS.

Greatest Elongations Visible at Washington.

	d	h			d	h			d	h			d	h			d	h			d	h	
June	7	15.8	W.	July	22	10.1	E.	Aug.	21	13.7	E.	Sept.	13	15.7	W.	Oct.	9	13.5	E.	Nov.	6	8.8	W.
	8	14.5	W.		26	15.9	W.		22	12.3	E.		14	14.3	W.		10	12.2	E.		7	7.4	W.
	9	13.1	W.		27	14.5	W.		23	10.9	E.		15	12.9	W.		11	10.8	E.		8	6.0	W.
	15	16.1	E.		28	13.1	W.		24	9.5	E.		16	11.5	W.		12	9.4	E.		12	11.8	E.
	16	14.7	E.		29	11.7	W.		25	8.2	E.		17	10.1	W.		13	8.0	E.		13	10.4	E.
	17	13.3	E.		30	10.3	W.		27	16.7	W.		18	8.7	W.		14	6.6	E.		14	9.0	E.
	24	15.0	W.	Aug.	3	16.1	E.		28	15.3	W.		19	7.3	W.		17	13.8	W.		15	7.6	E.
	25	13.6	W.		4	14.7	E.		29	13.9	W.		22	14.5	E.		18	12.4	W.		16	6.3	E.
	26	12.2	W.		5	13.3	E.		30	12.5	W.		23	13.1	E.		19	11.0	W.		21	10.7	W.
July	2	15.2	E.		6	11.9	E.		31	11.1	W.		24	11.7	E.		20	9.6	W.		22	9.3	W.
	3	13.8	E.		7	10.5	E.	Sept.	1	9.7	W.		25	10.3	E.		21	8.2	W.		23	7.9	W.
	4	12.4	E.		8	9.1	E.		2	8.3	W.		26	8.9	E.		22	6.9	W.		24	6.5	W.
	10	15.4	W.		11	16.3	W.		4	16.8	E.		27	7.5	E.		26	12.6	E.		25	5.2	W.
	11	14.0	W.		12	14.9	W.		5	15.5	E.		30	14.7	W.		27	11.3	E.		29	11.0	E.
	12	12.7	W.		13	13.5	W.		6	14.1	E.	Oct.	1	13.3	W.		28	9.9	E.		30	9.6	E.
	13	11.3	W.		14	12.1	W.		7	12.7	E.		2	11.9	W.		29	8.5	E.	Dec.	1	8.2	E.
	18	15.7	E.		15	10.7	W.		8	11.3	E.		3	10.5	W.		30	7.1	E.		2	6.8	E.
	19	14.3	E.		16	9.3	W.		9	9.9	E.		4	9.2	W.		31	5.7	E.		3	5.5	E.
	20	12.9	E.		19	16.5	E.		10	8.5	E.		5	7.8	W.	Nov.	4	11.5	W.		8	9.9	W.
	21	11.5	E.		20	15.1	E.		11	7.1	E.		6	6.4	W.		5	10.1	W.		9	8.5	W.

ENCELADUS.

	d	h			d	h			d	h			d	h			d	h			d	h	
June	5	23.3	E.	June	19	16.1	E.	July	3	9.0	E.	July	17	1.8	E.	July	30	18.5	E.	Aug.	13	11.3	E.
	7	8.2	E.		21	1.0	E.		4	17.8	E.		18	10.6	E.	Aug.	1	3.4	E.		14	20.2	E.
	8	17.0	E.		22	9.9	E.		6	2.7	E.		19	19.5	E.		2	12.3	E.		16	5.1	E.
	10	1.9	E.		23	18.8	E.		7	11.6	E.		21	4.4	E.		3	21.2	E.		17	13.9	E.
	11	10.8	E.		25	3.7	E.		8	20.5	E.		22	13.3	E.		5	6.0	E.		18	22.8	E.
	12	19.7	E.		26	12.5	E.		10	5.4	E.		23	22.2	E.		6	14.9	E.		20	7.7	E.
	14	4.6	E.		27	21.4	E.		11	14.2	E.		25	7.0	E.		7	23.8	E.		21	16.6	E.
	15	13.5	E.		29	6.3	E.		12	23.1	E.		26	15.9	E.		9	8.7	E.		23	1.4	E.
	16	22.4	E.		30	15.2	E.		14	8.0	E.		28	0.8	E.		10	17.6	E.		24	10.3	E.
	18	7.2	E.	July	2	0.1	E.		15	16.9	E.		29	9.7	E.		12	2.4	E.		25	19.2	E.

WASHINGTON MEAN TIME OF GREATEST ELONGATION.

ENCELADUS—(*Concluded*).

d	h	d	h	d	h	d	h	d	h	d	h
Aug. 27	4.1 E.	Sept. 16	17.2 E.	Oct. 7	6.4 E.	Oct. 27	19.6 E.	Nov. 17	9.0 E.	Dec. 7	22.3 E.
28	13.0 E.	18	2.1 E.	8	15.3 E.	29	4.5 E.	18	17.9 E.	9	7.2 E.
29	21.8 E.	19	11.0 E.	10	0.2 E.	30	13.4 E.	20	2.7 E.	10	16.1 E.
31	6.7 E.	20	19.9 E.	11	9.1 E.	31	22.3 E.	21	11.6 E.	12	1.0 E.
Sept. 1	15.6 E.	22	4.7 E.	12	17.9 E.	Nov. 2	7.2 E.	22	20.5 E.	13	9.9 E.
3	0.4 E.	23	13.6 E.	14	2.8 E.	3	16.1 E.	24	5.4 E.	14	18.8 E.
4	9.3 E.	24	22.5 E.	15	11.7 E.	5	1.0 E.	25	14.3 E.	16	3.7 E.
5	18.2 E.	26	7.4 E.	16	20.6 E.	6	9.9 E.	26	23.2 E.	17	12.6 E.
7	3.1 E.	27	16.2 E.	18	5.5 E.	7	18.7 E.	28	8.1 E.	18	21.5 E.
8	12.0 E.	29	1.1 E.	19	14.3 E.	9	3.6 E.	29	17.0 E.	20	6.4 E.
9	20.8 E.	30	10.0 E.	20	23.2 E.	10	12.5 E.	Dec. 1	1.9 E.	21	15.3 E.
11	5.7 E.	Oct. 1	18.9 E.	22	8.1 E.	11	21.4 E.	2	10.8 E.	23	0.2 E.
12	14.6 E.	3	3.8 E.	23	17.0 E.	13	6.3 E.	3	19.6 E.	24	9.1 E.
13	23.5 E.	4	12.6 E.	25	1.9 E.	14	15.2 E.	5	4.5 E.	25	18.0 E.
15	8.4 E.	5	21.5 E.	26	10.8 E.	16	0.1 E.	6	13.4 E.	27	2.9 E.

TETHYS.

d	h	d	h	d	h	d	h	d	h	d	h
June 10	11.2 E.	July 14	10.7 E.	Aug. 17	10.0 E.	Sept. 20	9.3 E.	Oct. 24	8.7 E.	Nov. 27	8.3 E.
12	8.6 E.	16	8.0 E.	19	7.3 E.	22	6.5 E.	26	6.0 E.	29	5.6 E.
14	5 9 E.	18	5.3 E.	21	4.6 E.	24	3.8 E.	28	3.3 E.	Dec. 1	2.9 E.
16	3.2 E.	20	2.6 E.	23	1.9 E.	26	1.1 E.	30	0.6 E.	3	0.2 E.
18	0.5 E.	21	23.9 E.	24	23.2 E.	27	22.4 E.	31	21.9 E.	4	21.5 E.
19	21.8 E.	23	21.2 E.	26	20.5 E.	29	19.7 E.	Nov. 2	19.2 E.	6	18.8 E.
21	19.1 E.	25	18.5 E.	28	17.8 E.	Oct. 1	17.0 E.	4	16.5 E.	8	16.2 E.
23	16.4 E.	27	15.8 E.	30	15.0 E.	3	14.3 E.	6	13.8 E.	10	13.5 E.
25	13.7 E.	29	13.1 E.	Sept. 1	12.3 E.	5	11.6 E.	8	11.1 E.	12	10.8 E.
27	11.0 E.	31	10.4 E.	3	9.6 E.	7	8.9 E.	10	8.4 E.	14	8.1 E.
29	8.3 E.	Aug. 2	7.7 E.	5	6.9 E.	9	6.2 E.	12	5.7 E.	16	5.5 E.
July 1	5.6 E.	4	5.0 E.	7	4.2 E.	11	3.5 E.	14	3.0 E.	18	2.8 E.
3	2.9 E.	6	2.2 E.	9	1.5 E.	13	0.8 E.	16	0.4 E.	20	0.1 E.
5	0.2 E.	7	23.5 E.	10	22.8 E.	14	22.1 E.	17	21.7 E.	21	21.4 E.
6	21.5 E.	9	20.8 E.	12	20.1 E.	16	19.4 E.	19	19.0 E.	23	18.8 E.
8	18.8 E.	11	18.1 E.	14	17.4 E.	18	16.7 E.	21	16.3 E.	25	16.1 E.
10	16.1 E.	13	15.4 E.	16	14.7 E.	20	14.0 E.	23	13.6 E.	27	13.4 E
12	13.4 E.	15	12.7 E.	18	12.0 E.	22	11.3 E.	25	10.9 E.	29	10.8 E.

DIONE.

d	h	d	h	d	h	d	h	d	h	d	h
June 10	17.0 E.	July 13	13.2 E.	Aug. 15	9.1 E.	Sept. 17	4.9 E.	Oct. 20	0.9 E.	Nov. 21	21.1 E.
13	10.7 E.	16	6.9 E.	18	2.8 E.	19	22.6 E.	22	18.6 E.	24	14.8 E.
16	4.4 E.	19	0.5 E.	20	20.4 E.	22	16.3 E.	25	12.3 E.	27	8.6 E.
18	22.1 E.	21	18.2 E.	23	14.1 E.	25	9.9 E.	28	5.9 E.	30	2.3 E.
21	15.8 E.	24	11.9 E.	26	7.7 E.	28	3.6 E.	30	23.6 E.	Dec. 2	20 0 E.
24	9.5 E.	27	5.5 E.	29	1.4 E.	30	21.2 E.	Nov. 2	17.3 E.	5	13.7 E.
27	3.1 E.	29	23.2 E.	31	19.0 E.	Oct. 3	14.9 E.	5	11.0 E.	8	7.4 E.
29	20.8 E.	Aug. 1	16.8 E.	Sept. 3	12.7 E.	6	8.6 E.	8	4.7 E.	11	1.1 E.
July 2	14.5 E.	4	10.5 E.	6	6.3 E.	9	2.2 E.	10	22.4 E.	13	18.8 E.
5	8.2 E.	7	4.2 E.	9	0.0 E.	11	19.9 E.	13	16.1 E.	16	12.5 E.
8	1.8 E.	9	21.8 E.	11	17.6 E.	14	13.6 E.	16	9.8 E.	19	6.2 E.
10	19.5 E.	12	15.5 E.	14	11.3 E.	17	7.2 E.	19	3.4 E.	22	0.0 E.

RHEA.

	d	h			d	h	
June	11	3.4	E.	Sept.	18	11.3	E.
	15	15.8	E.		22	23.7	E.
	20	4.2	E.		27	12.0	E.
	24	16.6	E.	Oct.	2	0.4	E.
	29	5.0	E.		6	12.7	E.
July	3	17.4	E.		11	1.1	E.
	8	5.8	E.		15	13.4	E.
	12	18.2	E.		20	1.8	E.
	17	6.6	E.		24	14.2	E.
	21	19.0	E.		29	2.6	E.
	26	7.3	E.	Nov.	2	15.0	E.
	30	19.7	E.		7	3.4	E.
Aug.	4	8.0	E.		11	15.8	E.
	8	20.4	E.		16	4.3	E.
	13	8 7	E.		20	16.7	E.
	17	21.0	E.		25	5.2	E.
	22	9.4	E.		29	17.6	E.
	26	21.7	E.	Dec.	4	6.1	E.
	31	10.0	E.		8	18.6	E.
Sept.	4	22.4	E.		13	7.1	E.
	9	10.7	E.		17	19.6	E.
	13	23.0	E.		22	8.1	E.

TITAN.

	d	h			d	h	
June	25	0.2	E.	Sept.	20	14.5	W.
	29	3.9	I.		24	10.0	S.
July	3	1.3	W.		28	11.5	E.
	6	21.0	S.	Oct.	2	14.9	I.
	10	22.7	E.		6	12.3	W.
	15	2.3	I.		10	7.8	S.
	18	23.7	W.		14	9.4	E.
	22	19.3	S.		18	12.8	I.
	26	20.9	E.		22	10.3	W.
	31	0.3	I.		26	6.0	S.
Aug.	3	21.6	W.		30	7.5	E.
	7	17.2	S.	Nov.	3	11.1	I.
	11	18.7	E.		7	8.7	W.
	15	22.1	I.		11	4.4	S.
	19	19.4	W.		15	6.1	E.
	23	14.9	S.		19	9.7	I.
	27	16.3	E.		23	7.5	W.
	31	19.7	I.		27	3.3	S.
Sept.	4	16.9	W.	Dec.	1	5.1	E.
	8	12.4	S.		5	8.9	I.
	12	13.8	E.		9	6.7	W.
	16	17.2	I.		13	2.7	S.

HYPERION.

	d			d	
May	13.3	W.	Sept.	6.0	E.
	17.8	S.		12.2	I.
	23.3	E.		17.2	W.
	29.5	I.		21.6	S.
June	3.6	W.		27.2	E.
	8.0	S.	Oct.	3.3	I.
	13.6	E.		8.3	W.
	19.7	I.		12.8	S.
	24.8	W.		18.3	E.
	29.2	S.		24.5	I.
July	4.7	E.		29.5	W.
	10.9	I.	Nov.	2.9	S.
	15.9	W.		8.5	E.
	20.4	S.		14.7	I.
	25.9	E.		19.7	W.
Aug.	1.0	I.		24.1	S.
	6.0	W.		29.7	E.
	10.4	S.	Dec.	6.0	I.
	16.0	E.		11.0	W.
	22.1	I.		15.4	S.
	27.1	W.		21.0	E.
	31.5	S.		27.3	I.

IAPETUS.

	d			d			d			d			d			d	
May	10.3	I	June	19.6	S.	July	28.8	I.	Sept.	6.3	S.	Oct.	15.0	I.	Nov.	24.0	S.
	30.9	W.	July	8.9	E.	Aug.	17.9	W.		25.3	E.	Nov.	4.2	W.	Dec.	13.4	E.

THE APPARENT ELEMENTS OF SATURN'S RINGS.

Washington Mean Noon.	*a* Outer Major Axis.	*b* Outer Minor Axis.	*p* Inclination of Northern Semi-Minor Axis to Circle of Declination from North to East.	*l* The Elevation of the Earth above the Plane of the Rings.	*l'* The Elevation of the Sun above the Plane of the Rings.	*u* Earth's Longitude from Saturn counted on the Plane of the Rings from their Ascending Node on the— Equator.	*u'* Ecliptic.
	"	"	° '	° '	° '	° '	° '
Jan. 0	36.19	6.38	6 20.4	10 9.3	8 13.2	26 33.2	343 51.9
20	35.45	5.68	6 13.1	9 13.3	7 56.7	28 22.9	345 41.6
Feb. 9	35.03	4.98	6 4.4	8 9.9	7 40.1	30 27.2	347 46.0
Mar. 1	34.95	4.29	5 54.9	7 3.4	7 23.4	32 37.6	349 56.5
21	35.20	3.66	5 45.1	5 58.3	7 6.6	34 46.0	352 5.0
Apr. 10	35.76	3.10	5 35.8	4 58.6	6 49.8	36 44.8	354 3.8
30	36.63	2.65	5 27.6	4 8.6	6 33.0	38 26.4	355 45.5
May 20	37.74	2.33	5 21.2	3 31.9	6 16.0	39 44.3	357 3.5
June 9	39.04	2.17	5 17.2	3 11.5	5 59.0	40 32.5	357 51.7
29	40.40	2.23	5 16.1	3 9.4	5 42.0	40 46.8	358 6.1
July 19	41.67	2.49	5 17.9	3 25.6	5 24.9	40 26.4	357 45.8
Aug. 8	42.64	2.94	5 22.3	3 57.4	5 7.8	39 35.0	356 54.4
28	43.15	3.50	5 28.4	4 39.2	4 50.6	38 22.0	355 41.5
Sept. 17	43.08	4.04	5 34.9	5 22.6	4 33.4	37 1.8	354 21.5
Oct. 7	42.44	4.42	5 40.5	5 59.0	4 16.0	35 51.4	353 11.0
27	41.36	4.57	5 44.1	6 20.9	3 58.6	35 5.0	352 24.8
Nov. 16	40.04	4.46	5 45.0	6 24.2	3 41.2	34 52.6	352 12.4
Dec. 6	38.68	4.13	5 43.0	6 7.7	3 23.8	35 17.2	352 37.1
26	37.45	3.62	5 38.2	5 33.1	3 6.3	36 16.9	353 36.8
31	37.17	3.48	5 36.6	5 21.9	3 2.0	36 36.7	353 56.6

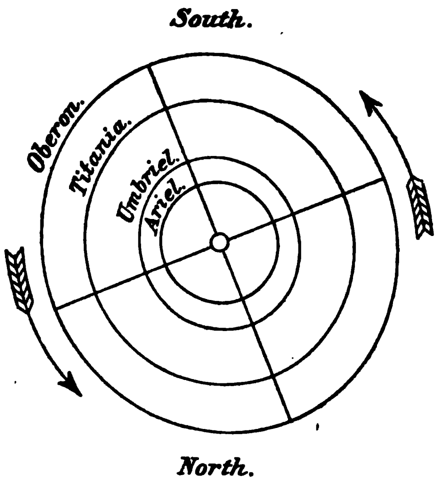
The factors to be multiplied by *a* and *b* to obtain the axes of—

The inner ellipse of the outer ring = 0.8801, log factor = 9.9445
The outer ellipse of the inner ring = 0.8599, log factor = 9.9344
The inner ellipse of the inner ring = 0.6650, log factor = 9.8228
The inner ellipse of the dusky ring = 0.5486, log factor = 9.7392

Note.—The positive sign of *l* indicates that the visible surface of the rings is the northern one.

Apparent Apsides.

Date.	Position Angle.	App. Distances. Ariel.	App. Distances. Umbriel.
	°	"	"
Apr. 10,	17.0	13.8	19.2
June 29,	19.5	14.4	20.0
Sept. 17,	22.6	13.8	19.2



Apparent Apsides.

Date.	Position Angle.	App. Distances. Titania.	App. Distances. Oberon.
	°	"	"
Apr. 10.	17.0	31.5	42.1
June 29,	19.5	32.8	43.9
Sept. 17,	22.6	31.5	42.1

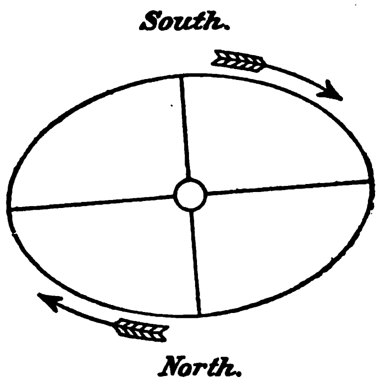
APPARENT ORBITS OF THE SATELLITES OF URANUS AT DATE OF OPPOSITION, JUNE 28, 1906, AS SEEN IN AN INVERTING TELESCOPE.

WASHINGTON MEAN TIME OF GREATEST ELONGATION.

ARIEL.						UMBRIEL.						TITANIA.						OBERON.			
North.			South.			North.			South.			North.			South.			North and South.			
	d	h		d	h		d	h		d	h		d	h		d	h		d	h	
Apr.	16	13.0	Apr.	20	7.8	Apr.	11	10.3	Apr.	13	12.1	Apr.	8	9.8	Apr.	12	18.3	May	8	9.4	N.
	24	2.5		27	21.2		19	17.2		21	19.0		17	2.8		21	11.2		15	3.1	S.
May	1	16.0	May	5	10.7		28	0.2		30	1.9		25	19.7		30	4.2		21	20.7	N.
	9	5.4		13	0.2	May	6	7.1	May	8	8.8	May	4	12.7	May	8	21.2		28	14.5	S.
	16	18.9		20	13.6		14	14.0		16	15.8		13	5.8		17	14.3	June	4	8.2	N.
	24	8.4		28	3.1		22	21.0		24	22.8		21	22.8		26	7.4		11	2.0	S.
	31	21.9	June	4	16.6		31	4.0	June	2	5.8		30	15.9	June	4	0.5		17	19.8	N.
June	8	11.4		12	6.2	June	8	11.0		10	12.8	June	8	9.0		12	17.6		24	13.6	S.
	16	0.9		19	19.7		16	18.0		18	19.8		17	2.1		21	10.7	July	1	7.4	N.
	23	14.4		27	9.2		25	1.0		27	2.8		25	19.3		30	3.8		8	1.2	S.
July	1	3.9	July	4	22.7	July	3	8.0	July	5	9.8	July	4	12.4	July	8	21.0		14	19.0	N.
	8	17.5		12	12.2		11	15.0		13	16.8		13	5.6		17	14.2		21	12.9	S.
	16	7.0		20	1.8		19	22.1		21	23.8		21	22.7		26	7.3		28	6.7	N.
	23	20.5		27	15.3		28	5.1		30	6.8		30	15.9	Aug.	4	0.5	Aug.	4	0.5	S.
	31	10.1	Aug.	4	4.8	Aug.	5	12.1	Aug.	7	13.8	Aug.	8	9.0		12	17.6		10	18.2	N.
Aug.	7	23.6		11	18.3		13	19.1		15	20.8		17	2.1		21	10.7		17	12.0	S.
	15	13.1		19	7.8		22	2.1		24	3.8		25	19.2		30	3.7		24	5.7	N.
	23	2.6		26	21.3		30	9.1	Sept.	1	10.8	Sept.	3	12.2	Sept.	7	20.7		30	23.3	S.
	30	16.1	Sept.	3	10.8	Sept.	7	16.0		9	17.8		12	5.2		16	13.7	Sept.	6	17.0	N.
Sept.	7	5.6		11	0.3		15	23.0		18	0.7		20	22.2		25	6.6		13	10.6	S.
	14	19.1		18	13.8		24	5.9		26	7.6		29	15.1	Oct.	3	23.5		20	4.1	N.
	22	8.6		26	3.3	Oct.	2	12.8	Oct.	4	14.5	Oct.	8	7.9		12	16.3		26	21.6	S.
	29	22.0	Oct.	3	16.8		10	19.7		12	21.4		17	0.7		21	9.1	Oct.	3	15.1	N.
Oct.	7	11.5		11	6.2		19	2.6		21	4.3		25	17.5		30	1.9		10	8.5	S.
	15	1.0		18	19.7		27	9.4		29	11.1	Nov.	3	10.2	Nov.	7	18.6		17	1.9	N.

	d	h		d	h
Period of Ariel,	2	12.489	Period of Titania,	8	16.942
Period of Umbriel,	4	3.460	Period of Oberon,	13	11.119

Note.—For Ariel only every third elongation is given, and for Umbriel every alternate one. The intermediate ones may be found by adding multiples of the period of the satellite.



Date.	Position Angle of Apsis.	Apparent Distance at Apsis.
	°	″
Jan. 0,	91.4	16.9
Apr. 10,	89.7	16.2
Sept. 22,	95.8	16.2
Dec. 31,	94.5	16.8

APPARENT ORBIT OF THE SATELLITE OF NEPTUNE AT DATE OF OPPOSITION, DECEMBER 33, 1906, AS SEEN IN AN INVERTING TELESCOPE.

WASHINGTON MEAN TIME OF GREATEST ELONGATION.

East.			West.			East.			West.			East.			West.		
	d	h		d	h		d	h		d	h		d	h		d	h
Jan.	0	13.1	Jan.	3	11.6	Mar.	23	20.5	Mar.	26	19.0	Oct.	15	10.4	Oct.	18	9.0
	6	10.2		9	8.8		29	17.6	Apr.	1	16.1		21	7.5		24	6.0
	12	7.3		15	5.9	Apr.	4	14.6		7	13.1		27	4.5		30	3.0
	18	4.5		21	3.0		10	11.6		13	10.1	Nov.	2	1.6	Nov.	5	0.1
	24	1.6		27	0.2		16	8.7		19	7.2		7	22.6		10	21.2
	29	22.7	Feb.	1	21.3		22	5.7		25	4.2		13	19.7		16	18.3
Feb.	4	19.8		7	18.4	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .		19	16.8		22	15.3
	10	17.0		13	15.5	Sept.	4	7.5	Sept.	7	6.0		25	13.9		28	12.4
	16	14.1		19	12.6		10	4.4		13	2.9	Dec.	1	11.0	Dec.	4	9.6
	22	11.2		25	9.7		16	1.4		18	23.9		7	8.1		10	6.7
	28	8.2	Mar.	3	6.8		21	22.4		24	20.9		13	5.2		16	3.8
Mar.	6	5.3		9	3.9		27	19.4		30	17.9		19	2.4		22	0.9
	12	2.4		15	0.9	Oct.	3	16.4	Oct.	6	14.9		24	23.5		27	22.0
	17	23.5		20	22.0		9	13.4		12	11.9		30	20.6		33	19.2

The above times are the instants of each passage of the satellite through the apsis of its apparent orbit. The position of the satellite at any other time may be found by measuring around the orbit from the apsis last passed through, bearing in mind that the radius vector of the satellite describes equal areas in equal times.

The period of the satellite of Neptune is $5^d\,21^h.044$.

NOTE.—In the preceding diagrams the central circle represents the planet and is on the same scale as the orbits.

WASHINGTON MEAN TIME.

PLANETARY CONFIGURATIONS.

	d	h	m			°	'
Jan.	1	2	–	♀	in ☋		
	2	23	–	⊕	in Perihelion.		
	4	10	–	☿	Greatest elong. W.	23	0
	5	0	–	☌ ♀ ♅	. . . . ♀ +	0	6
	5	15	32	☌ ♃ ☾	. . . . ♃ +	4	25
	9	3	28	☌ ♆ ☾	. . . . ♆ +	2	32
	16	9	–	☌ ☿ ♅	. . . . ☿ +	0	19
	16	19	–	☿	in ☋		
	21	4	–	♃	Stationary.		
	22	0	14	☌ ♅ ☾	. . . . ♅ —	3	59
	22	15	16	☌ ☿ ☾	. . . . ☿ —	3	50
	23	15	32	☌ ♀ ☾	. . . . ♀ —	2	52
	26	3	3	☌ ♄ ☾	. . . . ♄ —	0	31
	27	0	–	☿	in Aphelion.		
	27	19	7	☌ ♂ ☾	. . . . ♂ +	2	28
Feb.	1	23	22	☌ ♃ ☾	. . . . ♃ +	4	39
	4	13	–	♀	in Aphelion.		
	5	10	56	☌ ♆ ☾	. . . . ♆ +	2	38
	8	–	–	☾	Total eclipse vis. at Wash.		
	13	16	–	☌ ♀ ☉	Superior.		
	16	9	–	☿	Greatest Hel. Lat. S.		
	16	12	–	□ ♃ ☉			
	18	9	29	☌ ♅ ☾	. . . . ♅ —	3	55
	20	4	–	☌ ☿ ☉	Superior.		
	22	0	–	☌ ♀ ♄	. . . . ♀ +	0	7
	22	4	–	☌ ☿ ♄	. . . . ☿ —	0	17
	22	13	–	☌ ☿ ♀	. . . . ☿ —	0	22
	22	–	–	☉	Part. eclip. invis. at Wash.		
	22	17	40	☌ ♄ ☾	. . . . ♄ —	0	14
	22	19	21	☌ ♀ ☾	. . . . ♀ —	0	2
	22	19	40	☌ ☿ ☾	. . . . ☿ —	0	22
	24	6	–	☌ ♄ ☉			
	25	20	50	☌ ♂ ☾	. . . . ♂ +	4	24
	26	23	–	♀	Greatest Hel. Lat. S.		
Mar.	1	12	17	☌ ♃ ☾	. . . . ♃ +	4	42
	4	19	21	☌ ♆ ☾	. . . . ♆ +	2	39
	7	10	–	☿	in ☊		
	10	22	–	♂	in ☊		
	12	0	–	☿	in Perihelion.		
	17	16	28	☌ ♅ ☾	. . . . ♅ —	3	46
	18	0	–	☿	Greatest elong. E.	18	31
	18	21	–	♆	Stationary.		
	20	20	–	☉	enters ♈, Spring com.		
	22	6	40	☌ ♄ ☾	. . . . ♄ +	0	3
	22	7	–	☿	Greatest Hel. Lat. N.		
	25	0	49	☌ ♀ ☾	. . . . ♀ +	3	14
	25	7	51	☌ ☿ ☾	. . . . ☿ +	8	10
	25	9	–	☿	Stationary.		
	26	22	28	☌ ♂ ☾	. . . . ♂ +	5	27
	27	17	–	☌ ☿ ♀	. . . . ☿ +	4	46
	28	13	–	□ ♆ ☉			
Mar.	29	4	32	☌ ♃ ☾	. . . . ♃ +	4	32
	29	7	–	□ ♅ ☉			
Apr.	1	3	37	☌ ♆ ☾	. . . . ♆ +	2	30
	4	11	–	☌ ☿ ☉	Inferior.		
	12	19	–	♅	Stationary.		
	13	23	6	☌ ♅ ☾	. . . . ♅ —	3	34
	14	18	–	☿	in ☋		
	16	21	–	☿	Stationary.		
	18	17	45	☌ ♄ ☾	. . . . ♄ +	0	22
	20	19	38	☌ ☿ ☾	. . . . ☿ +	2	33
	24	5	–	♀	in ☊		
	24	10	14	☌ ♀ ☾	. . . . ♀ +	5	11
	24	23	33	☌ ♂ ☾	. . . . ♂ +	5	34
	25	0	–	☿	in Aphelion.		
	25	22	32	☌ ♃ ☾	. . . . ♃ +	4	16
	28	11	16	☌ ♆ ☾	. . . . ♆ +	2	15
May	2	12	–	☿	Greatest elong. W.	26	46
	5	21	–	☌ ♀ ♂	. . . . ♀ —	0	5
	11	6	49	☌ ♅ ☾	. . . . ♅ —	3	22
	11	10	–	☌ ♀ ♃	. . . . ♀ +	1	11
	15	9	–	☿	Greatest Hel. Lat. S.		
	16	3	28	☌ ♄ ☾	. . . . ♄ +	0	41
	17	19	–	☌ ♂ ♃	. . . . ♂ +	1	6
	20	18	15	☌ ☿ ☾	. . . . ☿ +	2	55
	23	17	24	☌ ♃ ☾	. . . . ♃ +	3	58
	23	23	23	☌ ♂ ☾	. . . . ♂ +	4	57
	24	21	54	☌ ♀ ☾	. . . . ♀ +	4	51
	25	18	36	☌ ♆ ☾	. . . . ♆ +	2	2
	27	20	–	♀	in Perihelion.		
June	2	9	–	☌ ♀ ♆	. . . . ♀ +	2	24
	3	9	–	☿	in ☊		
	5	15	–	□ ♄ ☉			
	7	15	36	☌ ♅ ☾	. . . . ♅ —	3	18
	7	23	–	☿	in Perihelion.		
	8	4	–	☌ ☿ ☉	Superior.		
	8	21	–	☌ ☿ ♃	. . . . ☿ +	1	19
	9	23	–	☌ ♃ ☉			
	12	12	31	☌ ♄ ☾	. . . . ♄ +	0	56
	15	11	–	☌ ☿ ♂	. . . . ☿ +	0	50
	18	6	–	☿	Greatest Hel. Lat. N.		
	18	16	–	☌ ☿ ♆	. . . . ☿ +	2	47
	18	17	–	♀	Greatest Hel. Lat. N.		
	20	12	46	☌ ♃ ☾	. . . . ♃ +	3	39
	21	15	–	☉	enters ♋, Summer com.		
	21	21	21	☌ ♂ ☾	. . . . ♂ +	3	52
	22	2	19	☌ ♆ ☾	. . . . ♆ +	1	53
	22	17	56	☌ ☿ ☾	. . . . ☿ +	4	8
	24	4	34	☌ ♀ ☾	. . . . ♀ +	2	29
	25	20	–	☌ ♂ ♆	. . . . ♂ +	1	49
	26	22	–	♄	Stationary.		
	28	11	–	☍ ♅ ☉			

WASHINGTON MEAN TIME.

PLANETARY CONFIGURATIONS.

	d	h	m			°	'
July	2	6	–	☌ ♆ ☉			
	2	15	–	⊕	in Aphelion.		
	5	0	18	☌ ♅ ☾	♅ −	3	21
	9	21	0	☌ ♄ ☾	♄ +	0	58
	11	17	–	☿	in ☋		
	14	22	–	☿	Greatest elong. E.	26	39
	15	3	–	☌ ♂ ☉			
	18	8	23	☌ ♃ ☾	♃ +	3	21
	19	11	0	☌ ♆ ☾	♆ +	1	50
	20	17	15	☌ ♂ ☾	♂ +	2	28
	20	–	–	☉	Part. eclip. invis. at Wash.		
	21	23	–	☿	in Aphelion.		
	22	20	8	☌ ☿ ☾	☿ −	3	34
	24	2	0	☌ ♀ ☾	♀ −	1	23
	28	0	–	☿	Stationary.		
Aug.	1	7	43	☌ ♅ ☾	♅ −	3	28
	3	–	–	☾	Total eclip. invis. at Wash.		
	6	4	24	☌ ♄ ☾	♄ +	0	49
	11	8	–	☿	Greatest Hel. Lat. S.		
	11	19	–	☌ ☿ ☉	Inferior.		
	13	19	–	♀	in ☋		
	15	3	34	☌ ♃ ☾	♃ +	3	0
	15	20	35	☌ ♆ ☾	♆ +	1	46
	17	2	–	☌ ☿ ♂	☿ −	5	5
	18	9	0	☌ ☿ ☾	☿ −	3	43
	18	11	29	☌ ♂ ☾	♂ +	0	54
	19	–	–	☉	Part. eclip. invis. at Wash.		
	21	1	–	☿	Stationary.		
	22	16	19	☌ ♀ ☾	♀ −	5	39
	28	13	32	☌ ♅ ☾	♅ −	3	28
	29	5	–	☿	Greatest elong. W.	18	12
	30	8	–	☿	in ☊		
Sept.	2	10	6	☌ ♄ ☾	♄ +	0	34
	3	22	–	☿	in Perihelion.		
	4	9	–	☌ ☿ ♂	☿ −	0	9
	4	10	–	☍ ♄ ☉			
	11	21	3	☌ ♃ ☾	♃ +	2	36
	12	2	–	♂	Greatest Hel. Lat. N.		
	12	6	23	☌ ♆ ☾	♆ +	1	37
	13	15	–	♅	Stationary.		
	14	5	–	☿	Greatest Hel. Lat. N.		
	16	4	39	☌ ♂ ☾	♂ −	0	44
	17	6	–	♀	in Aphelion.		
	17	8	14	☌ ☿ ☾	☿ −	1	27
	20	6	–	♀	Greatest elong. E.	46	29
	21	1	59	☌ ♀ ☾	♀ −	8	46
	23	6	–	☉	enters ♎, Autumn com.		
	23	15	–	☌ ☿ ☉	Superior.		
	24	18	53	☌ ♅ ☾	♅ −	3	19
	27	22	–	□ ♅ ☉			
	29	14	3	☌ ♄ ☾	♄ +	0	26
Oct.	3	10	–	□ ♃ ☉			
Oct.	6	2	–	□ ♆ ☉			
	7	17	–	☿	in ☋		
	9	10	52	☌ ♃ ☾	♃ +	2	12
	9	15	14	☌ ♆ ☾	♆ +	1	23
	9	15	–	♀	Greatest Hel. Lat. S.		
	14	21	17	☌ ♂ ☾	♂ −	2	16
	16	0	–	♆	Stationary.		
	17	11	–	♂	in Aphelion.		
	17	22	–	☿	in Aphelion.		
	18	5	39	☌ ☿ ☾	☿ −	6	33
	20	2	30	☌ ♀ ☾	♀ −	9	51
	22	1	52	☌ ♅ ☾	♅ −	3	3
	25	12	–	♀	Greatest brilliancy.		
	26	17	25	☌ ♄ ☾	♄ +	0	32
	29	8	–	♃	Stationary.		
Nov.	5	19	11	☌ ♃ ☾	♃ +	1	56
	5	22	13	☌ ♆ ☾	♆ +	1	7
	7	7	–	☿	Greatest Hel. Lat. S.		
	9	4	–	♀	Stationary.		
	9	5	–	☿	Greatest elong. E.	23	0
	12	13	32	☌ ♂ ☾	♂ −	3	30
	12	14	–	♄	Stationary.		
	14	13	–	☌ ☿ ♀	☿ +	1	57
	16	21	54	☌ ♀ ☾	♀ −	8	12
	17	0	58	☌ ☿ ☾	☿ −	6	12
	18	12	7	☌ ♅ ☾	♅ −	2	44
	19	12	–	☿	Stationary.		
	22	22	36	☌ ♄ ☾	♄ +	0	52
	26	7	–	☿	in ☊		
	29	12	–	☌ ♀ ☉	Inferior.		
	29	13	–	☌ ☿ ☉	Inferior.		
	30	4	–	☌ ☿ ♀	☿ +	2	34
	30	22	–	☿	in Perihelion.		
Dec.	1	0	–	□ ♄ ☉			
	2	21	42	☌ ♃ ☾	♃ +	1	58
	3	3	29	☌ ♆ ☾	♆ +	0	58
	4	22	–	♀	in ☊		
	9	3	–	☿	Stationary.		
	11	5	–	☿	Greatest Hel. Lat. N.		
	11	5	7	☌ ♂ ☾	♂ −	4	14
	12	21	–	☌ ☿ ♀	☿ +	0	48
	13	13	22	☌ ♀ ☾	♀ −	2	40
	13	14	16	☌ ☿ ☾	☿ −	2	1
	16	1	22	☌ ♅ ☾	♅ −	2	31
	18	0	–	☿	Greatest elong. W.	21	35
	19	3	–	♀	Stationary.		
	20	7	46	☌ ♄ ☾	♄ +	1	15
	22	1	–	☉	enters ♑, Winter com.		
	27	22	–	☍ ♃ ☉			
	29	20	51	☌ ♃ ☾	♃ +	2	16
	30	8	6	☌ ♆ ☾	♆ +	0	59
	30	12	–	☌ ♅ ☉			

POSITIONS OF OBSERVATORIES.

(*North Latitudes and West Longitudes are Considered Positive.*)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ.	Longitude.	
				From Washington.	From Greenwich.
	° ′ ″	′ ″		h m s	h m s
Abastuman . . .	+41 42 24	− 11 35.5	9.999 351	− 7 59 41	− 2 51 25
Åbo . . .	+60 26 56.8	− 10 2.1	9.998 887	− 6 37 22.20	− 1 29 6.42
Adelaide . . .	−34 55 38.5	+ 10 56.8	9.999 520	+ 9 37 23.92	− 9 14 20.30
Albany (*New Obs.*) .	+42 39 12.7	− 11 38.0	9.999 326	− 0 13 9.0	+ 4 55 6.8
Albany (*Old Obs.*) .	+42 39 49.5	− 11 38.0	9.999 326	− 0 13 15.79	+ 4 54 59.99
Alfred (*N. Y.*) . .	+42 15 19.8	− 11 37.0	9.999 337	+ 0 2 51.37	+ 5 11 7.15
Algiers (*Old Obs.*) .	+36 44 0	− 11 10.8	9.999 476	− 5 20 32.6	− 0 12 16.8
Algiers (*New Obs.*) .	+36 47 50	− 11 11.3	9.999 474	− 5 20 24.33	− 0 12 8.55
Allegheny . . .	+40 27 41.6	− 11 31.3	9.999 383	+ 0 11 47.15	+ 5 20 2.93
Altona . . .	+53 32 45.3	− 11 10.2	9.999 049	− 5 48 2.02	− 0 39 46.24
Amherst . . .	+42 22 17.1	− 11 37.3	9.999 334	− 0 18 11.11	+ 4 50 4.67
Annapolis . . .	+38 58 53.5	− 11 24.5	9.999 420	− 0 2 19.29	+ 5 5 56.49
Ann Arbor . . .	+42 16 48.0	− 11 37.0	9.999 336	+ 0 26 39.41	+ 5 34 55.19
Arequipa (*Harvard*) .	−16 24	+ 6 18.4	9.999 884	− 0 22 46	+ 4 45 30
Armagh . . .	+54 21 12.7	− 11 4.2	9.999 029	− 4 41 40.4	+ 0 26 35.4
Athens . . .	+37 58 20.7	− 11 18.9	9.999 445	− 6 43 8.70	− 1 34 52.92
Bamberg . . .	+49 53 6.0	− 11 30.7	9.999 141	− 5 51 49.43	− 0 43 33.65
Beloit . . .	+42 30 8.4	− 11 37.6	9.999 331	+ 0 47 51.5	+ 5 56 7.3
Bergen . . .	+60 23 54	− 10 2.7	9.998 888	− 5 29 28.53	− 0 21 12.75
Berkeley . . .	+37 52 23.6	− 11 18.3	9.999 448	+ 3 0 46.94	+ 8 9 2.72
Berlin . . .	+52 30 16.7	− 11 17.1	9.999 075	− 6 1 50.63	− 0 53 34.85
Berlin (*Urania*) . .	+52 31 30.7	− 11 17.0	9.999 075	− 6 1 43.23	− 0 53 27.45
Berne . . .	+46 57 8.7	− 11 39.0	9.999 216	− 5 38 1.51	− 0 29 45.73
Besançon . . .	+47 14 59.0	− 11 38.5	9.999 208	− 5 32 12.95	− 0 23 57.17
Bethlehem . . .	+40 36 23.1	− 11 31.9	9.999 379	− 0 6 43.93	+ 5 1 31.85
Birr Castle . . .	+53 5 47.0	− 11 13.3	9.999 060	− 4 36 34.9	+ 0 31 40.9
Bogota . . .	+ 4 36 15.4	− 1 51.5	9.999 991	− 0 11 21.58	+ 4 56 54.20
Bologna . . .	+44 29 54	− 11 40.3	9.999 279	− 5 53 40.7	− 0 45 24.9
Bombay . . .	+18 53 45	− 7 8.1	9.999 847	− 9 59 31.52	− 4 51 15.74
Bonn . . .	+50 43 45.0	− 11 26.9	9.999 120	− 5 36 39.00	− 0 28 23.22
Bordeaux . . .	+44 50 7.2	− 11 40.4	9.999 271	− 5 6 10.24	+ 0 2 5.54
Boston (*University*) .	+42 21 32.5	− 11 37.2	9.999 334	− 0 24 0.8	+ 4 44 15.0
Bothkamp . . .	+54 12 9.6	− 11 5.3	9.999 033	− 5 48 47.0	− 0 40 31.2
Breslau . . .	+51 6 55.8	− 11 25.0	9.999 110	− 6 16 24.57	− 1 8 8.79
Brisbane . . .	−27 28 0.0	+ 9 32.2	9.999 689	+ 8 39 37.82	−10 12 6.40
Brussels (*Uccle*) . .	+50 47 53	− 11 26.6	9.999 118	− 5 25 42.7	− 0 17 26.9
Brussels (*Old Obs.*) .	+50 51 10.7	− 11 26.3	9.999 117	− 5 25 44.51	− 0 17 28.73
Budapest . . .	+47 29 34.7	− 11 38.0	9.999 202	− 6 24 31.1	− 1 16 15.3
Cairo . . .	+30 4 38.2	− 10 6.5	9.999 632	− 7 13 24.69	− 2 5 8.91
Cambridge (*England*) .	+52 12 51.6	− 11 18.9	9.999 082	− 5 8 38.53	− 0 0 22.75
Cambridge (*Mass.*) .	+42 22 47.6	− 11 37.3	9.999 334	− 0 23 44.73	+ 4 44 31.05
Cape of Good Hope .	−33 56 3.6	+ 10 48.0	9.999 543	− 6 22 10.54	− 1 13 54.76
Catania . . .	+37 30 13.3	− 11 16.0	9.999 457	− 6 8 36	− 1 0 20
Chapultepec . .	+19 25 17.5	− 7 18.2	9.999 838	+ 1 28 22.52	+ 6 36 38.30
Charkow . . .	+50 0 9.6	− 11 30.2	9.999 138	− 7 33 11.55	− 2 24 55.77

POSITIONS OF OBSERVATORIES.

(*North Latitudes and West Longitudes are Considered Positive.*)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ.	Longitude. From Washington.	Longitude. From Greenwich.
	° ′ ″	′ ″		h m s	h m s
Charlottesville	+38 2 1.2	− 11 19.3	9.999 444	+ 0 5 49.44	+ 5 14 5.22
Chicago (*Old Obs.*)	+41 50 1.0	− 11 35.9	9.999 348	+ 0 42 11.06	+ 5 50 26.84
Christiania	+59 54 44.0	− 10 8.7	9.998 899	− 5 51 9.30	− 0 42 53.52
Cincinnati (*New Obs.*)	+39 8 19.5	− 11 25.4	9.999 416	+ 0 29 25.62	+ 5 37 41.40
Cincinnati (*Old Obs.*)	+39 6 26.5	− 11 25.2	9.999 417	+ 0 29 43.22	+ 5 37 59.00
Clinton	+43 3 17.0	− 11 38.7	9.999 316	− 0 6 38.33	+ 5 1 37.45
Coimbra	+40 12 24.5	− 11 30.3	9.999 389	− 4 34 32.7	+ 0 33 43.1
Columbia (*Missouri*)	+38 56 51.7	− 11 24.4	9.999 421	+ 1 1 2.55	+ 6 9 18.33
Copenhagen	+55 41 12.9	− 10 53.1	9.998 997	− 5 58 34.48	− 0 50 18.70
Cordoba	−31 25 15.2	+ 10 22.2	9.999 602	− 0 51 27.56	+ 4 16 48.22
Cracow	+50 3 52.0	− 11 29.9	9.999 137	− 6 28 6.06	− 1 19 50.28
Crowborough	+51 3 14	− 11 25.4	9.999 112	− 5 8 54	− 0 0 38
Dantzig	+54 21 18.0	− 11 4.1	9.999 029	− 6 22.55.4	− 1 14 39.6
Denver	+39 40 36.4	− 11 27.9	9.999 402	+ 1 51 31.85	+ 6 59 47.63
Dorpat	+58 22 47.1	− 10 26.4	9.998 934	− 6 55 9.07	− 1 46 53.29
Dresden	+51 2 16.8	− 11 25.4	9.999 112	− 6 3 10.63	− 0 54 54.85
Dublin	+53 23 13.1	− 11 11.3	9.999 053	− 4 42 54.7	+ 0 25 21.1
Dun Echt	+57 9 36	− 10 39.2	9.998 962	− 4 58 35.8	+ 0 9 40.0
Durham	+54 46 6.2	− 11 0.9	9.999 019	− 5 1 56.03	+ 0 6 19.75
Düsseldorf	+51 12 25.0	− 11 24.6	9.999 108	− 5 35 20.8	− 0 27 5.0
Edinburgh (*Calton Hill*)	+55 57 23.2	− 10 50.7	9.998 991	− 4 55 32.7	+ 0 12 43.1
Edinburgh (*Royal Obs.*)	+55 55 28.0	− 10 50.9	9.998 991	− 4 55 31.6	+ 0 12 44.2
Evanston (*Dearborn*)	+42 3 33.4	− 11 36.5	9.999 342	+ 0 42 26.5	+ 5 50 42.3
Flagstaff (*Lowell*)	+35 12 30.4	− 10 59.2	9.999 513	+ 2 18 28.79	+ 7 26 44.57
Florence (*Reale Museo*)	+43 46 4.1	− 11 39.7	9.999 298	− 5 53 17.3	− 0 45 1.5
Florence (*Arcetri*)	+43 45 14.6	− 11 39.7	9.999 298	− 5 53 17.12	− 0 45 1.34
Geneva	+46 11 58.8	− 11 39.9	9.999 236	− 5 32 52.49	− 0 24 36.71
Genoa	+44 25 9.3	− 11 40.2	9.999 281	− 5 43 57.11	− 0 35 41.33
Georgetown	+38 54 26.7	− 11 24.2	9.999 422	+ 0 0 2.48	+ 5 8 18.26
Glasgow (*Missouri*)	+39 13 45.6	− 11 25.8	9.999 414	+ 1 3 2.30	+ 6 11 18.08
Glasgow (*Scotland*)	+55 52 42.8	− 10 51.5	9.998 993	− 4 51 5.23	+ 0 17 10.55
Gohlis	+51 21 35.0	− 11 23.7	9.999 104	− 5 57 45.43	− 0 49 29.65
Gotha (*Old Obs.*)	+50 56 5.2	− 11 26.0	9.999 114	− 5 51 10.88	− 0 42 55.10
Gotha	+50 56 37.9	− 11 25.9	9.999 114	− 5 51 6.27	− 0 42 50.49
Göttingen	+51 31 47.9	− 11 22.8	9.999 100	− 5 48 2.07	− 0 39 46.29
Graz	+47 4 37.2	− 11 38.8	9.999 213	− 6 10 4	− 1 1 48
Greenwich	+51 28 38.1	− 11 23.1	9.999 101	− 5 8 15.78	0 0 0.00
Grignon	+47 33 42	− 11 37.8	9.999 201	− 5 25 54	− 0 17 38
Hamburg	+53 33 7.0	− 11 10.1	9.999 049	− 5 48 9.6	− 0 39 53.8
Hanover	+43 42 15.3	− 11 39.6	9.999 300	− 0 19 7.87	+ 4 49 7.91
Harrow	+51 34 47.1	− 11 22.6	9.999 098	− 5 6 55.92	+ 0 1 19.86
Hastings-on-Hudson	+40 59 25	− 11 33.2	9.999 369	− 0 12 46.33	+ 4 55 29.45
Haverford	+40 0 40.1	− 11 29.4	9.999 394	− 0 7 3.08	+ 5 1 12.70
Heidelberg	+49 24 35	− 11 32.5	9.999 153	− 5 43 4.3	− 0 34 48.5
Helsingfors	+60 9 42.6	− 10 5.6	9.998 893	− 6 48 4.93	− 1 39 49.15

POSITIONS OF OBSERVATORIES.

(*North Latitudes and West Longitudes are Considered Positive.*)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ.	Longitude.	
				From Washington.	From Greenwich.
	° ′ ″	′ ″		h m s	h m s
Hereny	+47 15 47.4	− 11 38.4	9.999 208	− 6 14 40.5	− 1 6 24.7
Hongkong	+22 18 13.4	− 8 10.7	9.999 789	+11 15 2.36	− 7 36 41.86
Hudson	+41 14 42.6	− 11 34.1	9.999 363	+ 0 17 25.5	+ 5 25 41.3
Jamaica	+18 24 51	− 6 58.7	9.999 854	+ 0 3 13.70	+ 5 11 29.48
Jena (*University*)	+50 55 34.9	− 11 26.0	9.999 115	− 5 54 36.05	− 0 46 20.27
Kalocsa	+46 31 41.7	− 11 39.6	9.999 227	− 6 24 10.12	− 1 15 54.34
Karlsruhe	+49 0 29.6	− 11 33.9	9.999 163	− 5 41 52.2	− 0 33 36.4
Kasan	+55 47 24.4	− 10 52.2	9.998 995	− 8 24 44.82	− 3 16 29.04
Kew	+51 28 6	− 11 23.2	9.999 101	− 5 7 0.7	+ 0 1 15.1
Kiel	+54 20 28.5	− 11 4.2	9.999 030	− 5 48 51.42	− 0 40 35.64
Kiew	+50 27 10.5	− 11 28.2	9.999 127	− 7 10 16.42	− 2 2 0.64
Kis Kartal	+47 41 54.8	− 11 37.5	9.999 197	− 6 26 27.5	− 1 18 11.7
Königsberg	+54 42 50.4	− 11 1.3	9.999 021	− 6 30 14.82	− 1 21 59.04
Kremsmünster	+48 3 23.1	− 11 36.7	9.999 188	− 6 4 47.37	− 0 56 31.59
La Plata	−34 54 30.3	+ 10 56.7	9.999 520	− 1 16 38.8	+ 3 51 37.0
Leiden	+52 9 20.0	− 11 19.3	9.999 084	− 5 26 11.95	− 0 17 56.17
Leipzig	+51 20 5.9	− 11 23.9	9.999 104	− 5 57 49.76	− 0 49 33.98
Liege (*Cointe, Ougrée*)	+50 37 7	− 11 27.5	9.999 123	− 5 30 31.0	− 0 22 15.2
Lisbon (*Marine Obs.*)	+38 42 17.6	− 11 23.3	9.999 427	− 4 31 42.20	+ 0 36 33.58
Lisbon (*Royal Obs.*)	+38 42 31.3	− 11 23.1	9.999 427	− 4 31 31.10	+ 0 36 44.68
Liverpool	+53 24 4.8	− 11 11.2	9.999 053	− 4 55 58.45	+ 0 12 17.33
Lübec	+53 51 31.1	− 11 7.9	9.999 042	− 5 51 1.5	− 0 42 45.7
Lund	+55 41 51.6	− 10 53.0	9.998 997	− 6 1 0.79	− 0 52 45.01
Lussinpiccolo (*Manora*)	+44 32 11.0	− 11 40.3	9.999 278	− 6 6 8.19	− 0 57 52.41
Lyons	+45 41 41.0	− 11 40.3	9.999 248	− 5 27 24.33	− 0 19 8.55
Madison	+43 4 36.8	− 11 38.7	9.999 316	+ 0 49 22.15	+ 5 57 37.93
Madras	+13 4 8.0	− 5 7.6	9.999 925	−10 29 14.90	− 5 20 59.12
Madrid	+40 24 29.7	− 11 31.1	9.999 384	− 4 53 30.66	+ 0 14 45.12
Manila	+14 35 25	− 5 40.5	9.999 907	+10 47 54	− 8 3 50
Mannheim	+49 29 11.0	− 11 32.2	9.999 151	− 5 42 6.23	− 0 33 50.45
Marburg	+50 48 46.9	− 11 26.5	9.999 118	− 5 43 20.7	− 0 35 4.9
Markree	+54 10 31.8	− 11 5.5	9.999 034	− 4 34 27.4	+ 0 33 48.4
Marseilles	+43 18 17.5	− 11 39.1	9.999 310	− 5 29 50.37	− 0 21 34.59
Mauritius	−20 5 39	+ 7 30.8	9.999 828	− 8 58 28.4	− 3 50 12.6
Melbourne	−37 49 53.4	+ 11 18.1	9.999 449	+ 9 11 50.2	− 9 39 54.0
Meudon	+48 48 18	− 11 34.6	9.999 169	− 5 17 11.4	− 0 8 55.6
Mexico	+19 26 1.3	− 7 18.4	9.999 838	+ 1 28 10.95	+ 6 36 26.73
Middletown (*Conn.*)	+41 33 16.0	− 11 35.1	9.999 355	− 0 17 38.60	+ 4 50 37.18
Milan	+45 27 59.3	− 11 40.4	9.999 254	− 5 45 1.70	− 0 36 45.92
Modena	+44 38 52.8	− 11 40.4	9.999 275	− 5 51 58.7	− 0 43 42.9
Moncalieri	+44 59 51	− 11 40.4	9.999 266	− 5 39 5	− 0 30 49
Montreal	+45 30 17.0	− 11 40.4	9.999 253	− 0 13 57.15	+ 4 54 18.63
Montsouris	+48 49 18.0	− 11 34.5	9.999 168	− 5 17 36.46	− 0 9 20.68
Moscow	+55 45 19.8	− 10 52.5	9.998 995	− 7 38 32.87	− 2 30 17.09
Mount Hamilton (*Lick*)	+37 20 25.6	− 11 14.9	9.999 461	+ 2 58 19.11	+ 8 6 34.89
Munich	+48 8 45.5	− 11 36.5	9.999 186	− 5 54 41.85	− 0 46 26.07

POSITIONS OF OBSERVATORIES.

(*North Latitudes and West Longitudes are Considered Positive.*)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ.	Longitude	
				From Washington.	From Greenwich.
	° ′ ″	′ ″		h m s	h m s
Naples . . .	+40 51 46.3	− 11 32.8	9.999 372	6 5 17.51	− 0 57 1.73
Nashville . . .	+36 8 54.4	− 11 6.6	9.999 490	+ 0 38 56.4	+ 5 47 12.2
Natal . . .	−29 50 46.6	+ 10 3.7	9.999 637	− 7 12 16.96	− 2 4 1.18
Neuchatel . . .	+47 0 1.2	− 11 38.9	9.999 215	− 5 36 5.71	− 0 27 49.93
New Haven (*Old Obs.*)	+41 18 36.5	− 11 34.3	9.999 361	− 0 16 33.64	+ 4 51 42.14
New Haven (*Yale Univ.*)	+41 19 22.3	− 11 34.4	9.999 361	− 0 16 35.20	+ 4 51 40.58
New York (*Columb. Coll.*)	+40 45 23.1	− 11 32.4	9.999 375	− 0 12 22.14	+ 4 55 53.64
New York (RUTHERFURD)	+40 43 48.5	− 11 32.3	9.999 376	− 0 12 19.10	+ 4 55 56.68
Nice . . .	+43 43 16.9	− 11 39.6	9.999 299	− 5 37 27.96	− 0 29 12.18
Nicolaeff . . .	+46 58 21.8	− 11 38.9	9.999 216	− 7 16 9.58	− 2 7 53.80
Northfield . . .	+44 27 41.6	− 11 40.3	9.999 280	+ 1 4 20.03	+ 6 12 35.81
Oakland (*Cal.*) . .	+37 48 5	− 11 17.9	9.999 449	+ 3 0 50.77	+ 8 9 6.55
Odessa . . .	+46 28 36.7	− 11 39.6	9.999 228	− 7 11 17.88	− 2 3 2.10
Ogden . . .	+41 13 8.6	− 11 34.0	9.999 363	+ 2 19 43.85	+ 7 27 59.63
O-Gyalla . . .	+47 52 27.3	− 11 37.1	9.999 192	− 6 21 1.32	− 1 12 45.54
Olmütz . . .	+49 35 43	− 11 31.8	9.999 149	− 6 17 24	− 1 9 8
Oxford (*Mississippi*) .	+34 22 12.6	− 10 52.0	9.999 533	+ 0 49 51.3	+ 5 58 7.1
Oxford (*Radcliffe*) .	+51 45 35.4	− 11 21.6	9.999 094	− 5 3 13.2	+ 0 5 2.6
Oxford (*University*) .	+51 45 34.2	− 11 21.6	9.999 094	− 5 3 15.4	+ 0 5 0.4
Padua . . .	+45 24 5	− 11 40.4	9.999 256	− 5 55 44.97	− 0 47 29.19
Palermo . . .	+38 6 44.0	− 11 19.7	9.999 442	− 6 1 41.68	− 0 53 25.90
Paramatta . . .	−33 48 49.8	+ 10 46.9	9.999 546	+ 8 47 44.0	−10 4 0.2
Paris . . .	+48 50 11.2	− 11 34.5	9.999 168	− 5 17 36.75	− 0 9 20.97
Philadelphia . .	+39 57 7.5	− 11 29.2	9.999 396	− 0 7 37.27	+ 5 0 38.51
Philadelphia (*Flower*)	+39 58 2.1	− 11 29.2	9.999 395	− 0 7 9.2	+ 5 1 6.6
Plonsk . . .	+52 37 40.0	− 11 16.4	9.999 072	− 6 29 47.8	− 1 21 32.0
Pola . . .	+44 51 48.7	− 11 40.4	9.999 270	− 6 3 38.67	− 0 55 22.89
Portsmouth . .	+50 48 3	− 11 26.6	9.999 118	− 5 3 51.0	+ 0 4 24.8
Potsdam . . .	+52 22 56.0	− 11 17.9	9.999 078	− 6 0 31.7	− 0 52 15.9
Poughkeepsie . .	+41 41 18	− 11 35.5	9.999 351	− 0 12 42.13	+ 4 55 33.65
Prague (*University*) .	+50 5 15.8	− 11 29.8	9.999 136	− 6 5 56.1	− 0 57 40.3
Princeton . . .	+40 20 57.8	− 11 30.8	9.999 385	− 0 9 38.17	+ 4 58 37.61
Princeton (*Halsted*) .	+40 20 55.8	− 11 30.9	9.999 386	− 0 9 36.34	+ 4 58 39.44
Providence (SEAGRAVE)	+41 49 46.4	− 11 35.9	9.999 348	− 0 22 38.14	+ 4 45 37.64
Providence (*Ladd*) .	+41 50 21	− 11 35.9	9.999 348	− 0 22 39.83	+ 4 45 35.95
Pulkowa . . .	+59 46 18.7	− 10 10.4	9.998 902	− 7 9 34.42	− 2 1 18.64
Quebec . . .	+46 47 59.2	− 11 39.2	9.999 220	− 0 23 23.14	+ 4 44 52.64
Quito . . .	− 0 14 0	+ 0 5.7	0.000 000	+ 0 5 50.88	+ 5 14 6.66
Riga . . .	+56 57 9.3	− 10 41.3	9.998 967	− 6 44 43.95	− 1 36 28.17
Rio de Janeiro . .	−22 54 23.6	+ 8 21.1	9.999 779	− 2 15 34.4	+ 2 52 41.4
Rochester . . .	+43 9 16.8	− 11 38.8	9.999 314	+ 0 2 6.00	+ 5 10 21.78
Rome (*Coll. Rom.*) .	+41 53 53.6	− 11 36.1	9.999 346	− 5 58 11.33	− 0 49 55.55
Rome (*Capitol*) . .	+41 53 33.5	− 11 36.0	9.999 346	− 5 58 12.15	− 0 49 56.37
Rome (*Vatican*) . .	+41 54 4.8	− 11 36.1	9.999 346	− 5 58 5.25	− 0 49 49.47
Rousdon . . .	+50 42 38	− 11 27.0	9.999 120	− 4 56 16.84	+ 0 11 58.94
Rugby . .	+52 22 7	− 11 18.0	9.999 079	− 5 3 13.8	+ 0 5 2.0

POSITIONS OF OBSERVATORIES.

(*North Latitudes and West Longitudes are Considered Positive.*)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ.	Longitude.	
				From Washington.	From Greenwich.
	° ′ ″	′ ″		h m s	h m s
San Fernando	+36 27 42.0	− 11 8.9	9.999 483	− 4 43 26.6	+ 0 24 49.2
San Francisco	+37 47 27.9	− 11 17.8	9.999 450	+ 3 1 27.08	+ 8 9 42.86
Santiago de Chile	−33 26 42.0	+ 10 43.4	9.999 555	− 0 25 29.56	+ 4 42 46.22
South Hadley	+42 15 18.2	− 11 37.0	9.999 337	− 0 17 55.49	+ 4 50 20.29
Speier	+49 18 55.2	− 11 32.9	9.999 156	− 5 42 1.34	− 0 33 45.56
St. Louis	+38 38 3.0	− 11 22.7	9.999 429	+ 0 52 33.48	+ 6 0 49.26
St. Petersburg (*Academy*)	+59 56 29.7	− 10 8.4	9.998 898	− 7 9 29.24	− 2 1 13.46
St. Petersburg (*Univ.*)	+59 56 32.0	− 10 8.4	9.998 898	− 7 9 27.2	− 2 1 11.4
Stockholm	+59 20 33.0	− 10 15.5	9.998 912	− 6 20 29.77	− 1 12 13.99
Stonyhurst	+53 50 40	− 11 8.0	9.999 042	− 4 58 23.10	+ 0 9 52.68
Strassburg (*New Obs.*)	+48 35 0.3	− 11 35.3	9.999 174	− 5 39 20.47	− 0 31 4.69
Strassburg (*Old Obs.*)	+48 34 53.8	− 11 35.3	9.999 174	− 5 39 18.27	− 0 31 2.49
Sydney	−33 51 41.1	+ 10 47.3	9.999 545	+ 8 46 54.68	−10 4 49.54
Syracuse	+43 2 13.1	− 11 38.6	9.999 317	− 0 3 42.42	+ 5 4 33.36
Tacubaya	+19 24 17.5	− 7 17.8	9.999 839	+ 1 28 30.75	+ 6 36 46.53
Taschkent	+41 19 31.3	− 11 34.4	9.999 361	− 9 45 26.58	− 4 37 10.80
Tokio	+35 39 17.5	− 11 2.8	9.999 502	+ 9 32 46.20	− 9 18 58.02
Toronto	+43 39 35.9	− 11 39.6	9.999 301	+ 0 9 18.87	+ 5 17 34.65
Toulouse	+43 36 45	− 11 39.5	9.999 302	− 5 14 5.66	− 0 5 49.88
Trieste	+45 38 45.4	− 11 40.3	9.999 250	− 6 3 18.73	− 0 55 2.95
Troy (*N. Y.*)	+42 43 52.9	− 11 38.1	9.999 325	− 0 13 33.49	+ 4 54 42.29
Tulse Hill	+51 26 47.0	− 11 23.3	9.999 102	− 5 7 48.1	+ 0 0 27.7
Turin	+45 4 8.0	− 11 40.4	9.999 265	− 5 39 2.96	− 0 30 47.18
Tuscaloosa (*Ala. Univ.*)	+33 12 36.8	− 10 41.1	9.999 561	+ 0 41 55.96	+ 5 50 11.74
Twickenham	+51 27 4.2	− 11 23.3	9.999 102	− 5 7 2.7	+ 0 1 13.1
Upsala (*New Obs.*)	+59 51 29.4	− 10 9.3	9.998 900	− 6 18 45.93	− 1 10 30.15
Utrecht	+52 5 9.6	− 11 19.7	9.999 086	− 5 28 46.8	− 0 20 31.0
Venice	+45 26 10.5	− 11 40.4	9.999 255	− 5 57 37.90	− 0 49 22.12
Vienna (*Josephstadt*)	+48 12 53.8	− 11 36.2	9.999 183	− 6 13 41.1	− 1 5 25.3
Vienna (*New Obs.*)	+48 13 55.4	− 11 36.2	9.999 183	− 6 13 37.17	− 1 5 21.39
Vienna (*Old Obs.*)	+48 12 35.5	− 11 36.3	9.999 184	− 6 13 47.42	− 1 5 31 64
Vienna (*Ottakring*)	+48 12 46.7	− 11 36.2	9.999 183	− 6 13 26.89	− 1 5 11.11
Warsaw	+52 13 4.7	− 11 18.9	9.999 082	− 6 32 23.06	− 1 24 7.28
Washington	+38 55 14.0	− 11 24.2	9.999 422	0 0 0.00	+ 5 8 15.78
Washington (*Old Obs.*)	+38 53 38.8	− 11 24.1	9.999 422	− 0 0 3.63	+ 5 8 12.15
Washington (*Smithsonian*)	+38 53 17.3	− 11 24.1	9.999 422	− 0 0 9.6	+ 5 8 6.2
Washington (*Cath. Univ.*)	+38 56 14.8	− 11 24.2	9 999 422	− 0 0 15.78	+ 5 8 0.00
Wellington	−41 18 0.6	+ 11 34.3	9.999 361	+ 7 12 37.70	−11 39 6.52
West Point (*Old Obs.*)	+41 23 31	− 11 34.6	9.999 359	− 0 12 26.34	+ 4 55 49.44
West Point (*New Obs.*)	+41 23 22.1	− 11 34.6	9.999 359	− 0 12 25.23	+ 4 55 50.55
Wilhelmshaven	+53 31 52.2	− 11 10.3	9.999 050	− 5 40 50.89	− 0 32 35.11
Williamstown (*Mass.*)	+42 42 30	− 11 38.0	9.999 325	− 0 15 26	+ 4 52 50
Williamstown (*Victoria*)	−37 52 7.2	+ 11 18.3	9.999 448	+ 9 12 6.1	− 9 39 38.1
Wilna	+54 40 59.1	− 11 1.6	9.999 021	− 6 49 24.60	− 1 41 8.82
Windsor	−33 36 30.8	+ 10 44.9	9.999 551	+ 8 48 23.7	−10 3 20.5
Zürich	+47 22 40.0	− 11 38.2	9.999 205	− 5 42 28.08	− 0 34 12.30

PART IV.

APPARENT PLACES OF STARS, STAR-NUMBERS, AND OTHER DATA,

BASED ON THE CONSTANTS OF THE PARIS CONFERENCE OF 1896.

FORMULÆ FOR THE REDUCTION OF THE POSITIONS OF THE FIXED STARS, USING THE NOTATION OF BESSEL, AND THE CONSTANTS OF THE PARIS CONFERENCE OF MAY, 1896.

NOTATION.

τ, the time reckoned in units of one year, from the beginning of the Besselian fictitious year, (1906, January $0^d.553$, Washington mean time),
α_0, δ_0, the star's mean right ascension and declination at the beginning of the fictitious year,
α, δ, the star's apparent right ascension and declination at the time τ,
μ, μ', the annual proper motion in right ascension and declination,
$\odot$, the Sun's true longitude,
L, the Sun's mean longitude,
☊, the longitude of the Moon's ascending node,
ω, the obliquity of the ecliptic,
Γ', the longitude of the Moon's perigee,
☾, the Moon's mean longitude.

BESSELIAN STAR-NUMBERS.

$$\begin{array}{ll}
A = \tau - 0.342\,17 \sin ☊ & +0.000\,24 \sin (☾ + \Gamma') \\
\quad +0.004\,15 \sin 2\,☊ & +0.001\,33 \sin (☾ - \Gamma') \\
\quad -0.024\,95 \sin 2\,\mathrm{L} & -0.000\,68 \sin (2☾ - ☊) \\
\quad +0.002\,18 \sin (\mathrm{L} + 75^\circ.3) & -0.000\,52 \sin (3☾ - \Gamma') \\
\quad -0.000\,97 \sin (3\,\mathrm{L} + 78^\circ.7) & +0.000\,30 \sin (☾ - 2\,\mathrm{L} + \Gamma') \\
\quad +0.000\,24 \sin (2\,\mathrm{L} - ☊) & +0.000\,12 \sin 2\,(☾ - \mathrm{L}) \\
\quad -0.004\,05 \sin 2☾ &
\end{array}$$

$$\begin{array}{ll}
\quad\quad '' & '' \\
B = -9.210 \cos ☊ & +0.007 \cos (2\,\mathrm{L} - ☊) \\
\quad +0.090 \cos 2\,☊ & -0.088 \cos 2☾ \\
\quad -0.546 \cos 2\,\mathrm{L} & -0.018 \cos (2☾ - ☊) \\
\quad -0.021 \cos (3\,\mathrm{L} + 78^\circ.7) & -0.011 \cos (3☾ - \Gamma') \\
\quad +0.009 \cos (\mathrm{L} - 78^\circ.7) & +0.005 \cos (☾ + \Gamma')
\end{array}$$

$C = -20.4700 \cos \omega \cos \odot$
$D = -20.4700 \sin \odot$
$E = -\ 0.0423 \sin ☊ + 0''.0005 \sin 2\,☊ - 0''.0031 \sin 2\,\mathrm{L}$

Bessel's *Star-Constants.*

$a = 3^s.072\,45 + 1^s.336\,42 \sin \alpha_0 \tan \delta_0 =$ precession in right ascension
$b = \frac{1}{15} \cos \alpha_0 \tan \delta_0$
$c = \frac{1}{15} \cos \alpha_0 \sec \delta_0$
$d = \frac{1}{15} \sin \alpha_0 \sec \delta_0$
$a' = 20''.0463 \cos \alpha_0 =$ precession in declination
$b' = -\sin \alpha_0$
$c' = \tan \omega \cos \delta_0 - \sin \alpha_0 \sin \delta_0$
$d' = \cos \alpha_0 \sin \delta_0$

Reduction to Apparent Position.

$\alpha = \alpha_0 + \tau\mu + Aa + Bb + Cc + Dd + \frac{1}{15}E$ (in time)
$\delta = \delta_0 + \tau\mu' + Aa' + Bb' + Cc' + Dd'$ (in arc)

INDEPENDENT STAR-NUMBERS.

$f = f' + f'' = +\ 46''.0867\,A + E$ (in arc) $= 3^s.072\,45\,A + \frac{1}{15}E$ (in time)
$f'' = -\ 0^s.0124 \sin 2☾ + 0^s.0041 \sin (☾ - \Gamma') + 0^s.0007 \sin (☾ + \Gamma')$
$\quad -\ 0^s.0021 \sin (2☾ - ☊) - 0^s.0016 \sin (3☾ - \Gamma')$
$\quad +\ 0^s.0009 \sin (☾ - 2\,\mathrm{L} + \Gamma') + 0^s.0004 \sin 2\,(☾ - \mathrm{L})$

$g \sin G = B$ $\qquad h \sin H = C$
$g \cos G = 20''.0463\,A$ $\qquad h \cos H = D$ $\qquad i = C \tan \omega$

Reduction to Apparent Position.

$\alpha = \alpha_0 + f + \tau\mu + \frac{1}{15} g \sin (G + \alpha_0) \tan \delta_0 + \frac{1}{15} h \sin (H + \alpha_0) \sec \delta_0$ (in time)
$\delta = \delta_0 + \tau\mu' + g \cos (G + \alpha_0) + h \cos (H + \alpha_0) \sin \delta_0 + i \cos \delta_0$ (in arc)

Notes.—(1) The independent star-numbers are more convenient, when only one or two apparent positions of a star are required, or when Bessel's star-constants are not known with sufficient accuracy. Otherwise, the Besselian star-numbers are more convenient.

(2) In using the star-constants of the *British Association Catalogue*, $a, b, c, d, a', b', c', d'$, with the star-numbers of this Ephemeris, the quantities to be formed are Ac, Bd, Ca, Db, $-Ac'$, $-Bd'$, $-Ca'$, $-Db'$.

PRECESSION, OBLIQUITY, ETC., 1906.

(CONSTANTS OF PARIS CONFERENCE.)

FOR GREENWICH MEAN NOON.

Date.		Precession in Longitude from 1906.0.	Nutation.			Obliquity of Ecliptic. (*Newcomb.*)	The Sun's Aberration.
			In Longitude.	In R. A.	In Obliquity.		
		″	″	s	″	° ′ ″	″
Jan.	0	− 0.11	− 10.13	− 0.620	− 7.94	23 26 57.51	− 20.82
	10	+ 1.27	9.85	0.602	7.79	57.65	20.81
	20	2.64	9.66	0.591	7.58	57.84	20.80
	30	4.02	9.61	0.588	7.35	58.06	20.77
Feb.	9	5.40	9.71	0.594	7.11	58.29	20.74
	19	+ 6.77	− 9.97	− 0.610	− 6.86	23 26 58.52	− 20.70
Mar.	1	8.15	10.37	0.634	6.65	58.72	20.65
	11	9.52	10.86	0.664	6.52	58.85	20.59
	21	10.90	11.38	0.696	6.41	58.94	20.54
	31	12.27	11.95	0.731	6.38	58.96	20.48
Apr.	10	+ 13.65	− 12.44	− 0.761	− 6.42	23 26 58.90	− 20.42
	20	15.03	12.84	0.785	6.50	58.81	20.36
	30	16.40	13.12	0.803	6.61	58.68	20.31
May	10	17.78	13.26	0.812	6.74	58.55	20.26
	20	19.15	13.26	0.812	6.85	58.42	20.22
	30	+ 20.53	− 13.14	− 0.804	− 6.92	23 26 58.34	− 20.18
June	9	21.90	12.93	0.791	6.96	58.28	20.15
	19	23.28	12.67	0.775	6.95	58.28	20.14
	29	24.66	12.39	0.758	6.88	58.34	20.13
July	9	26.03	12.14	0.742	6.74	58.47	20.13
	19	+ 27.41	− 11.98	− 0.733	− 6.56	23 26 58.63	− 20.14
	29	28.78	11.91	0.728	6.34	58.84	20.16
Aug.	8	30.16	11.96	0.732	6.10	59.07	20.18
	18	31.54	12.15	0.743	5.85	59.30	20.22
	28	32.91	12.47	0.763	5.63	59.51	20.26
Sept.	7	+ 34.29	− 12.90	− 0.789	− 5.44	23 26 59.69	− 20.31
	17	35.66	13.40	0.820	5.30	59.82	20.36
	27	37.04	13.93	0.852	5.22	59.89	20.42
Oct.	7	38.41	14.45	0.884	5.20	59.89	20.48
	17	39.79	14.89	0.911	5.25	59.83	20.54
	27	+ 41.17	− 15.21	− 0.930	− 5.34	23 26 59.72	− 20.60
Nov.	6	42.54	15.40	0.942	5.46	59.59	20.65
	16	43.92	15.43	0.944	5.58	59.46	20.70
	26	45.29	15.30	0.935	5.68	59.35	20.74
Dec.	6	46.67	15.05	0.921	5.75	59.27	20.77
	16	+ 48.04	− 14.71	− 0.900	− 5.74	23 26 59.26	− 20.80
	26	49.42	14.32	0.876	5.68	59.31	20.81
	36	+ 50.80	− 13.94	− 0.853	− 5.52	23 26 59.42	− 20.81

Mean Obliquity 1906.0 23° 27′ 5″.45 (*Newcomb*).

	″	
Precession for 1906	50.2577	log = 1.70120
Precession in a Solar Day	0.1376	log = 9.13862
Precession in a Sidereal Day	0.1372	log = 9.13743

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.	Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.
Jan. 0	−9.29761	+0.8952	−0.50929	+1.30460	Feb. 15	−8.86344	+0.8416	−1.19548	+1.05142
1	9.29367	0.8943	0.55136	1.30317	16	8.84323	0.8423	1.20042	1.03957
2	9.28963	0.8940	0.58958	1.30161	17	8.81823	0.8421	1.20517	1.02726
3	9.28497	0.8942	0.62458	1.29990	18	8.79078	0.8408	1.20974	1.01445
4	9.27946	0.8948	0.65684	1.29805	19	8.76358	0.8383	1.21412	1.00113
h (7.0) 5	−9.27270	+0.8955	−0.68674	+1.29606	h (10.0) 20	−8.73989	+0.8350	−1.21832	+0.98724
6	9.26451	0.8962	0.71458	1.29391	21	8.72189	0.8315	1.22235	0.97277
7	9.25484	0.8966	0.74061	1.29162	22	8.70978	0.8281	1.22621	0.95767
8	9.24388	0.8964	0.76503	1.28918	23	8.70295	0.8252	1.22990	0.94188
9	9.23206	0.8954	0.78802	1.28659	24	8.69897	0.8232	1.23342	0.92538
10	−9.22011	+0.8935	−0.80973	+1.28384	25	−8.69583	+0.8220	−1.23678	+0.90809
11	9.20909	0.8909	0.83026	1.28094	26	8.69188	0.8215	1.23998	0.88995
12	9.19967	0.8877	0.84974	1.27788	27	8.68520	0.8216	1.24302	0.87090
13	9.19246	0.8845	0.86825	1.27466	28	8.67440	0.8222	1.24591	0.85087
14	9.18727	0.8818	0.88587	1.27127	Mar. 1	8.65887	0.8228	1.24864	0.82974
15	−9.18324	+0.8801	−0.90267	+1.26773	2	−8.63769	+0.8234	−1.25122	+0.80731
16	9.17909	0.8795	0.91871	1.26401	3	8.61002	0.8236	1.25366	0.78360
17	9.17362	0.8799	0.93405	1.26013	4	8.57611	0.8231	1.25594	0.75839
18	9.16560	0.8808	0.94873	1.25608	5	8.53782	0.8217	1.25808	0.73151
19	9.15464	0.8818	0.96279	1.25185	6	8.49803	0.8194	1.26008	0.70272
h (8.0) 20	−9.14085	+0.8822	−0.97628	+1.24743	h (11.0) 7	−8.46180	+0.8163	−1.26194	+0.67178
21	9.12516	0.8817	0.98923	1.24283	8	8.43393	0.8128	1.26366	0.63833
22	9.10894	0.8801	1.00167	1.23805	9	8.41731	0.8096	1.26523	0.60196
23	9.09374	0.8775	1.01362	1.23307	10	8.41095	0.8072	1.26667	0.56215
24	9.08063	0.8743	1.02512	1.22790	11	8.40976	0.8062	1.26797	0.51820
25	−9.07022	+0.8709	−1.03619	+1.22253	12	−8.40569	+0.8065	−1.26914	+0.46917
26	9.06251	0.8678	1.04685	1.21696	13	8.39129	0.8080	1.27017	0.41377
27	9.05675	0.8652	1.05711	1.21118	14	8.36040	0.8100	1.27107	0.34996
28	9.05212	0.8634	1.06701	1.20518	15	8.30835	0.8119	1.27183	0.27545
29	9.04759	0.8622	1.07654	1.19897	16	8.23147	0.8130	1.27246	0.18507
30	−9.04242	+0.8616	−1.08573	+1.19252	17	−8.12872	+0.8130	−1.27296	+0.07069
31	9.03591	0.8614	1.09460	1.18585	18	8.00130	0.8118	1.27333	9.91488
Feb. 1	9.02751	0.8616	1.10315	1.17893	19	7.85309	0.8096	1.27357	9.66949
2	9.01678	0.8618	1.11140	1.17177	20	7.70243	0.8069	1.27368	+9.05077
3	9.00342	0.8617	1.11936	1.16435	21	7.57519	0.8042	1.27365	−9.38425
h (9.0) 4	−8.98771	+0.8612	−1.12704	+1.15666	h (12.0) 22	−7.49831	+0.8021	−1.27350	−9.77571
5	8.96993	0.8600	1.13445	1.14870	23	7.47857	0.8007	1.27321	9.97802
6	8.95143	0.8579	1.14160	1.14046	24	7.47129	0.8003	1.27280	0.11534
7	8.93359	0.8548	1.14850	1.13192	25	7.45179	0.8008	1.27225	0.21936
8	8.91819	0.8511	1.15515	1.12308	26	7.38202	0.8019	1.27158	0.30306
9	−8.90666	+0.8473	−1.16157	+1.11392	27	−7.19312	+0.8035	−1.27077	−0.37306
10	8.89938	0.8438	1.16776	1.10443	28	−6.36173	0.8054	1.26984	0.43318
11	8.89526	0.8412	1.17372	1.09459	29	+7.21748	0.8072	1.26877	0.48583
12	8.89193	0.8399	1.17947	1.08438	30	7.60314	0.8087	1.26757	0.53264
13	8.88705	0.8398	1.18501	1.07380	31	7.83378	0.8096	1.26624	0.57475
14	−8.87800	+0.8406	−1.19036	+1.06282	Apr. 1	+7.99300	+0.8097	−1.26478	−0.61300
15	−8.86344	+0.8416	−1.19548	+1.05142	2	+8.10823	+0.8088	−1.26319	−0.64800

$E = -0''.02 = -0^{s}.002$

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.	Solar Day. (Sid. Hour.)	Log *A*.	Log *Γ*.	Log *C*.	Log *D*.
Apr. 1	+7.99300	+0.8097	−1.26478	−0.61300	May 17	+9.05438	+0.8295	−1.01734	−1.23145
2	8.10823	0.8088	1.26319	0.64800	18	9.05877	0.8303	1.00617	1.23622
3	8.19061	0.8070	1.26146	0.68026	19	9.06390	0.8318	0.99459	1.24081
4	8.24378	0.8047	1.25960	0.71014	20	9.07048	0.8339	0.98257	1.24524
5	8.27531	0.8025	1.25760	0.73796	21	9.07882	0.8362	0.97008	1.24950
^{h}(13.0) 6	+8.28959	+0.8009	−1.25546	−0.76397	^{h}(16.0) 22	+9.08881	+0.8386	−0.95711	−1.25359
7	8.29535	0.8004	1.25319	0.78838	23	9.10051	0.8408	0.94361	1.25753
8	8.30233	0.8014	1.25078	0.81135	24	9.11348	0.8425	0.92956	1.26130
9	8.31869	0.8037	1.24822	0.83304	25	9.12720	0.8435	0.91492	1.26492
10	8.35180	0.8068	1.24553	0.85356	26	9.14079	0.8437	0.89964	1.26839
11	+8.39915	+0.8100	−1.24270	−0.87303	27	+9.15354	+0.8429	−0.88369	−1.27171
12	8.45500	0.8126	1.23971	0.89152	28	9.16453	0.8413	0.86702	1.27488
13	8.51028	0.8141	1.23658	0.90913	29	9.17330	0.8393	0.84955	1.27791
14	8.55979	0.8143	1.23331	0.92593	30	9.17970	0.8375	0.83124	1.28079
15	8.59934	0.8135	1.22988	0.94197	31	9.18432	0.8364	0.81200	1.28353
16	+8.62829	+0.8119	−1.22630	−0.95730	June 1	+9.18831	+0.8365	−0.79174	−1.28614
17	8.64709	0.8101	1.22256	0.97199	2	9.19293	0.8377	0.77038	1.28860
18	8.65811	0.8087	1.21866	0.98607	3	9.19923	0.8400	0.74780	1.29093
19	8.66417	0.8081	1.21461	0.99958	4	9.20806	0.8428	0.72385	1.29313
20	8.66811	0.8084	1.21039	1.01256	5	9.21935	0.8455	0.69838	1.29520
^{h}(14.0) 21	+8.67256	+0.8095	−1.20600	−1.02501	^{h}(17.0) 6	+9.23241	+0.8473	−0.67121	−1.29713
22	8.67970	0.8113	1.20144	1.03700	7	9.24603	0.8480	0.64210	1.29894
23	8.69028	0.8137	1.19672	1.04854	8	9.25892	0.8475	0.61077	1.30061
24	8.70492	0.8163	1.19181	1.05965	9	9.27010	0.8459	0.57689	1.30216
25	8.72370	0.8189	1.18673	1.07036	10	9.27914	0.8437	0.54001	1.30359
26	+8.74570	+0.8212	−1.18146	−1.08068	11	+9.28596	+0.8415	−0.49958	−1.30488
27	8.77019	0.8231	1.17600	1.09064	12	9.29101	0.8397	0.45486	1.30606
28	8.79539	0.8241	1.17035	1.10024	13	9.29493	0.8387	0.40488	1.30711
29	8.81968	0.8242	1.16450	1.10951	14	9.29848	0.8385	0.34826	1.30804
30	8.84111	0.8234	1.15845	1.11845	15	9.30227	0.8390	0.28300	1.30884
May 1	+8.85812	+0.8219	−1.15219	−1.12709	16	+9.30668	+0.8401	−0.20603	−1.30952
2	8.87064	0.8202	1.14572	1.13543	17	9.31201	0.8415	0.11228	1.31008
3	8.87875	0.8190	1.13903	1.14349	18	9.31836	0.8430	9.99242	1.31052
4	8.88417	0.8187	1.13210	1.15128	19	9.32572	0.8444	9.82614	1.31084
5	8.88908	0.8196	1.12495	1.15880	20	9.33393	0.8454	9.55310	1.31104
^{h}(15.0) 6	+8.89614	+0.8219	−1.11755	−1.16607	^{h}(18.0) 21	+9.34270	+0.8457	−8.64883	−1.31112
7	8.90720	0.8251	1.10991	1.17311	22	9.35164	0.8452	+9.42850	1.31107
8	8.92314	0.8285	1.10200	1.17989	23	9.36020	0.8438	9.76410	1.31091
9	8.94320	0.8316	1.09383	1.18645	24	9.36790	0.8415	9.95103	1.31063
10	8.96548	0.8338	1.08537	1.19278	25	9.37420	0.8387	0.08118	1.31022
11	+8.98744	+0.8347	−1.07663	−1.19891	26	+9.37905	+0.8358	+0.18109	−1.30970
12	9.00711	0.8344	1.06758	1.20482	27	9.38256	0.8334	0.26214	1.30905
13	9.02317	0.8332	1.05822	1.21053	28	9.38530	0.8320	0.33031	1.30828
14	9.03527	0.8317	1.04853	1.21604	29	9.38805	0.8319	0.38910	1.30739
15	9.04387	0.8303	1.03850	1.22136	30	9.39164	0.8329	0.44077	1.30638
16	+9.04980	+0.8295	−1.02811	−1.22650	July 1	+9.39672	+0.8346	+0.48683	−1.30524
17	+9.05438	+0.8295	−1.01734	−1.23145	2	+9.40348	+0.8364	+0.52834	−1.30399

$E = -0''.03 = -0^{s}.002$

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.	Sȯlar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.
July 1	+9.39672	+0.8346	+0.48683	−1.30524	Aug. 16	+9.58510	+0.7737	+1.17818	−1.08674
2	9.40348	0.8364	0.52834	1.30399	17	9.58884	0.7705	1.18351	1.07675
3	9.41164	0.8376	0.56612	1.30260	18	9.59204	0.7664	1.18865	1.06640
4	9.42057	0.8378	0.60076	1.30110	19	9.59443	0.7618	1.19361	1.05567
5	9.42938	0.8366	0.63273	1.29946	20	9.59596	0.7574	1.19840	1.04453
h 6	+9.43739	+0.8343	+0.66240	−1.29770	h (22.0) 21	+9.59670	+0.7539	+1.20302	−1.03297
(19.0) 7	9.44400	0.8312	0.69006	1.29582	22	9.59714	0.7517	1.20747	1.02096
8	9.44917	0.8278	0.71595	1.29380	23	9.59764	0.7511	1.21175	1.00847
9	9.45297	0.8247	0.74027	1.29165	24	9.59877	0.7519	1.21587	0.99549
10	9.45574	0.8223	0.76319	1.28937	25	9.60083	0.7534	1.21983	0.98198
11	+9.45806	+0.8208	+0.78485	−1.28696	26	+9.60392	+0.7548	+1.22363	−0.96789
12	9.46039	0.8201	0.80537	1.28441	27	9.60787	0.7554	1.22728	0.95321
13	9.46304	0.8200	0.82485	1.28173	28	9.61217	0.7546	1.23078	0.93787
14	9.46629	0.8205	0.84338	1.27891	29	9.61634	0.7522	1.23413	0.92184
15	9.47025	0.8211	0.86104	1.27595	30	9.61990	0.7486	1.23733	0.90507
16	+9.47489	+0.8216	+0.87790	−1.27284	31	+9.62260	+0.7442	+1.24039	−0.88748
17	9.48012	0.8218	0.89402	1.26960	Sept. 1	9.62431	0.7398	1.24330	0.86900
18	9.48586	0.8215	0.90944	1.26620	2	9.62526	0.7360	1.24608	0.84957
19	9.49182	0.8203	0.92422	1.26266	3	9.62569	0.7333	1.24871	0.82909
20	9.49769	0.8181	0.93840	1.25896	4	9.62594	0.7318	1.25121	0.80746
h 21	+9.50310	+0.8151	+0.95203	−1.25511	h (23.0) 5	+9.62632	+0.7314	+1.25356	−0.78454
(20.0) 22	9.50759	0.8113	0.96511	1.25110	6	9.62704	0.7318	1.25579	0.76021
23	9.51104	0.8073	0.97770	1.24694	7	9.62819	0.7327	1.25788	0.73428
24	9.51339	0.8036	0.98982	1.24261	8	9.62986	0.7338	1.25983	0.70656
25	9.51500	0.8008	1.00149	1.23812	9	9.63199	0.7347	1.26166	0.67679
26	+9.51635	+0.7993	+1.01275	−1.23345	10	+9.63453	+0.7351	+1.26335	−0.64468
27	9.51807	0.7992	1.02360	1.22861	11	9.63740	0.7348	1.26491	0.60984
28	9.52069	0.8001	1.03407	1.22360	12	9.64037	0.7335	1.26635	0.57181
29	9.52451	0.8013	1.04418	1.21841	13	9.64325	0.7312	1.26766	0.52995
30	9.52955	0.8022	1.05394	1.21302	14	9.64576	0.7278	1.26883	0.48346
31	+9.53541	+0.8021	+1.06337	−1.20744	15	+9.64758	+0.7239	+1.26987	−0.43121
Aug. 1	9.54149	0.8007	1.07248	1.20167	16	9.64872	0.7200	1.27079	0.37163
2	9.54718	0.7979	1.08129	1.19570	17	9.64920	0.7168	1.27159	0.30236
3	9.55199	0.7940	1.08980	1.18952	18	9.64927	0.7150	1.27225	0.21970
4	9.55563	0.7897	1.09804	1.18312	19	9.64931	0.7149	1.27279	0.11730
h 5	+9.55820	+0.7856	+1.10600	−1.17651	h 20	+9.64976	+0.7164	+1.27320	−9.98280
(21.0) 6	9.55988	0.7820	1.11371	1.16967	(0.0) 21	9.65099	0.7190	1.27349	9.78662
7	9.56107	0.7795	1.12116	1.16259	22	9.65316	0.7219	1.27365	−9.41843
8	9.56216	0.7779	1.12838	1.15527	23	9.65616	0.7241	1.27368	+8.94388
9	9.56343	0.7772	1.13535	1.14769	24	9.65968	0.7250	1.27358	9.64145
10	+9.56512	+0.7772	+1.14210	−1.13986	25	+9.66323	+0.7243	+1.27336	+9.89659
11	9.56733	0.7774	1.14863	1.13175	26	9.66640	0.7221	1.27301	0.05622
12	9.57009	0.7777	1.15495	1.12336	27	9.66881	0.7189	1.27253	0.17264
13	9.57336	0.7778	1.16105	1.11468	28	9.67038	0.7155	1.27192	0.26429
14	9.57708	0.7773	1.16696	1.10569	29	9.67121	0.7125	1.27119	0.33986
15	+9.58107	+0.7760	+1.17267	−1.09638	30	+9.67151	+0.7106	+1.27032	+0.40413
16	+9.58510	+0.7737	+1.17818	−1.08674	Oct. 1	+9.67156	+0.7099	+1.26933	+0.46003

$E = -0''.03 = -0^{s}.002$

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.	Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.
Oct. 1	+9.67156	+0.7099	+1.26933	+0.46003	Nov. 16	+9.75324	+0.7509	+1.04336	+1.21883
2	9.67170	0.7106	1.26820	0.50945	17	9.75683	0.7541	1.03265	1.22430
3	9.67213	0.7122	1.26694	0.55373	18	9.76077	0.7558	1.02153	1.22956
4	9.67300	0.7145	1.26555	0.59381	19	9.76462	0.7559	1.00998	1.23463
5	9.67435	0.7170	1.26402	0.63041	20	9.76803	0.7546	0.99796	1.23951
(1.0^{h}) 6	+9.67614	+0.7194	+1.26236	+0.66407	(4.0^{h}) 21	+9.77079	+0.7526	+0.98546	+1.24421
7	9.67837	0.7214	1.26056	0.69520	22	9.77284	0.7504	0.97245	1.24872
8	9.68091	0.7227	1.25862	0.72414	23	9.77430	0.7488	0.95889	1.25305
9	9.68361	0.7231	1.25655	0.75118	24	9.77541	0.7483	0.94475	1.25721
10	9.68629	0.7224	1.25433	0.77652	25	9.77641	0.7489	0.92998	1.26119
11	+9.68874	+0.7207	+1.25197	+0.80035	26	+9.77755	+0.7506	+0.91456	+1.26501
12	9.69070	0.7183	1.24946	0.82284	27	9.77900	0.7530	0.89842	1.26866
13	9.69207	0.7157	1.24681	0.84411	28	9.78084	0.7558	0.88151	1.27214
14	9.69286	0.7135	1.24400	0.86428	29	9.78308	0.7586	0.86376	1.27547
15	9.69321	0.7125	1.24105	0.88344	30	9.78567	0.7611	0.84512	1.27863
16	+9.69347	+0.7132	+1.23795	+0.90167	Dec. 1	+9.78857	+0.7630	+0.82549	+1.28164
17	9.69400	0.7155	1.23468	0.91905	2	9.79164	0.7641	0.80478	1.28449
18	9.69519	0.7192	1.23126	0.93565	3	9.79476	0.7642	0.78288	1.28719
19	9.69724	0.7233	1.22768	0.95152	4	9.79777	0.7632	0.75967	1.28974
20	9.70011	0.7271	1.22394	0.96671	5	9.80048	0.7614	0.73499	1.29214
(2.0^{h}) 21	+9.70358	+0.7298	+1.22003	+0.98127	(5.0^{h}) 6	+9.80280	+0.7589	+0.70868	+1.29439
22	9.70723	0.7309	1.21595	0.99524	7	9.80463	0.7564	0.68051	1.29650
23	9.71066	0.7304	1.21169	1.00864	8	9.80602	0.7545	0.65023	1.29846
24	9.71351	0.7287	1.20726	1.02153	9	9.80715	0.7537	0.61752	1.30027
25	9.71560	0.7264	1.20265	1.03392	10	9.80829	0.7543	0.58198	1.30195
26	+9.71695	+0.7244	+1.19785	+1.04585	11	+9.80976	+0.7563	+0.54311	+1.30348
27	9.71774	0.7232	1.19287	1.05733	12	9.81182	0.7593	0.50026	1.30486
28	9.71823	0.7232	1.18769	1.06840	13	9.81454	0.7624	0.45254	1.30611
29	9.71873	0.7244	1.18231	1.07907	14	9.81791	0.7649	0.39875	1.30722
30	9.71946	0.7268	1.17672	1.08935	15	9.82165	0.7660	0.33718	1.30819
31	+9.72058	+0.7298	+1.17093	+1.09928	16	+9.82546	+0.7656	+0.26524	+1.30902
Nov. 1	9.72219	0.7331	1.16492	1.10886	17	9.82899	0.7637	0.17879	1.30971
2	9.72419	0.7364	1.15869	1.11810	18	9.83198	0.7607	0.07055	1.31026
3	9.72662	0.7393	1.15224	1.12703	19	9.83434	0.7573	9.92583	1.31068
4	9.72938	0.7415	1.14554	1.13565	20	9.83611	0.7543	9.70703	1.31096
(3.0^{h}) 5	+9.73229	+0.7429	+1.13860	+1.14398	(6.0^{h}) 21	+9.83744	+0.7521	+9.24438	+1.31110
6	9.73526	0.7433	1.13141	1.15203	22	9.83858	0.7511	−9.19965	1.31110
7	9.73806	0.7426	1.12396	1.15980	23	9.83977	0.7512	9.69215	1.31097
8	9.74051	0.7411	1.11624	1.16732	24	9.84116	0.7522	9.91694	1.31070
9	9.74246	0.7392	1.10824	1.17457	25	9.84284	0.7536	0.06423	1.31029
10	+9.74387	+0.7375	+1.09995	+1.18158	26	+9.84486	+0.7551	−0.17391	+1.30974
11	9.74485	0.7366	1.09135	1.18835	27	9.84718	0.7564	0.26129	1.30906
12	9.74564	0.7371	1.08244	1.19488	28	9.84977	0.7572	0.33389	1.30823
13	9.74660	0.7392	1.07320	1.20120	29	9.85253	0.7572	0.39596	1.30727
14	9.74806	0.7427	1.06362	1.20729	30	9.85534	0.7562	0.45013	1.30617
15	+9.75025	+0.7468	+1.05368	+1.21316	31	+9.85810	+0.7542	−0.49817	+1.30492
16	+9.75324	+0.7509	+1.04336	+1.21883	32	+9.86064	+0.7511	−0.54129	+1.30354

$E = -0''.04 = -0^{s}.002$

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f	f′	G		H		Log g.	Log h.	i	Log i.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
Jan.	0	−0.0001	−0.618	+0.007	116 50.3	7 47.4	350 53.9	23 23.6	+0.94466	+1.31010	−1.40	−0.1465
	1	+0.0026	0.607	+0.002	116 41.4	7 46.8	349 57.5	23 19.8	0.94324	1.30988	1.54	0.1886
	2	0.0053	0.597	−0.003	116 29.7	7 46.0	349 1.0	23 16.1	0.94221	1.30964	1.69	0.2268
	3	0.0081	0.587	0.007	116 14.4	7 45.0	348 4.5	23 12.3	0.94148	1.30938	1.83	0.2618
h	4	0.0108	0.577	0.010	115 55.4	7 43.7	347 7.9	23 8.5	0.94085	1.30910	1.97	0.2941
(7.0)	5	0.0136	−0.567	−0.011	115 32.3	7 42.1	346 11.3	23 4.8	+0.94014	+1.30880	−2.11	−0.3240
	6	0.0163	0.556	0.010	115 5.2	7 40.3	345 14.6	23 1.0	0.93920	1.30848	2.25	0.3518
	7	0.0190	0.546	0.008	114 34.8	7 38.3	344 17.8	22 57.2	0.93781	1.30814	2.39	0.3778
	8	0.0218	0.536	−0.004	114 2.8	7 36.2	343 20.8	22 53.4	0.93579	1.30779	2.53	0.4023
	9	0.0245	0.526	+0.001	113 31.2	7 34.1	342 23.8	22 49.6	0.93306	1.30742	2.66	0.4253
	10	0.0272	−0.516	+0.005	113 2.2	7 32.2	341 26.7	22 45.8	+0.92962	+1.30702	−2.80	−0.4470
	11	0.0300	0.506	0.008	112 38.4	7 30.6	340 29.6	22 42.0	0.92572	1.30661	2.93	0.4675
	12	0.0327	0.497	0.009	112 20.9	7 29.4	339 32.3	22 38.1	0.92165	1.30618	3.07	0.4870
	13	0.0355	0.487	0.007	112 9.7	7 28.6	338 34.8	22 34.3	0.91788	1.30574	3.20	0.5055
	14	0.0382	0.477	+0.003	112 2.9	7 28.2	337 37.3	22 30.5	0.91482	1.30528	3.33	0.5231
	15	0.0409	−0.468	−0.002	111 56.5	7 27.8	336 39.7	22 26.6	+0.91279	+1.30480	−3.47	−0.5399
	16	0.0437	0.458	0.007	111 46.8	7 27.1	335 41.9	22 22.8	0.91168	1.30430	3.60	0.5560
	17	0.0464	0.449	0.011	111 31.0	7 26.1	334 44.0	22 18.9	0.91126	1.30380	3.73	0.5713
	18	0.0491	0.439	0.012	111 6.9	7 24.5	333 46.0	22 15.1	0.91100	1.30329	3.86	0.5860
h	19	0.0519	0.430	0.010	110 35.4	7 22.4	332 47.9	22 11.2	0.91051	1.30275	3.98	0.6000
(8.0)	20	0.0546	−0.421	−0.005	109 58.9	7 19.9	331 49.5	22 7.3	+0.90921	+1.30220	−4.11	−0.6135
	21	0.0574	0.412	+0.001	109 20.9	7 17.4	330 51.1	22 3.4	0.90696	1.30164	4.23	0.6265
	22	0.0601	0.403	0.006	108 45.3	7 15.0	329 52.5	21 59.5	0.90377	1.30106	4.35	0.6389
	23	0.0628	0.394	0.011	108 15.2	7 13.0	328 53.8	21 55.6	0.89992	1.30048	4.48	0.6509
	24	0.0656	0.385	0.014	107 52.1	7 11.5	327 54.9	21 51.7	0.89577	1.29989	4.60	0.6624
	25	0.0683	−0.376	+0.014	107 35.9	7 10.4	326 55.9	21 47.7	+0.89173	+1.29928	−4.72	−0.6734
	26	0.0710	0.368	0.012	107 25.4	7 9.7	325 56.7	21 43.8	0.88820	1.29867	4.83	0.6841
	27	0.0738	0.359	0.008	107 18.2	7 9.2	324 57.4	21 39.8	0.88534	1.29805	4.95	0.6944
	28	0.0765	0.351	+0.003	107 12.0	7 8.8	323 57.9	21 35.9	0.88323	1.29742	5.06	0.7042
	29	0.0793	0.343	−0.002	107 4.7	7 8.3	322 58.3	21 31.9	0.88175	1.29678	5.17	0.7138
	30	0.0820	−0.334	−0.006	106 54.6	7 7.6	321 58.5	21 27.9	+0.88078	+1.29614	−5.28	−0.7230
	31	0.0847	0.326	0.009	106 40.6	7 6.7	320 58.5	21 23.9	0.88009	1.29550	5.39	0.7319
Feb.	1	0.0875	0.318	0.011	106 22.2	7 5.5	319 58.4	21 19.9	0.87953	1.29484	5.50	0.7404
	2	0.0902	0.310	0.011	105 59.1	7 3.9	318 58.2	21 15.9	0.87889	1.29419	5.61	0.7486
h	3	0.0930	0.302	0.009	105 31.5	7 2.1	317 57.8	21 11.9	0.87787	1.29353	5.71	0.7566
(9.0)	4	0.0957	−0.294	−0.006	105 0.9	7 0.1	316 57.2	21 7.8	+0.87632	+1.29287	−5.81	−0.7643
	5	0.0984	0.287	−0.001	104 28.9	6 57.9	315 56.4	21 3.8	0.87400	1.29221	5.91	0.7717
	6	0.1012	0.279	+0.003	103 57.8	6 55.9	314 55.5	20 59.7	0.87089	1.29155	6.01	0.7788
	7	0.1039	0.272	0.007	103 30.8	6 54.1	313 54.5	20 55.6	0.86701	1.29089	6.11	0.7857
	8	0.1066	0.264	0.009	103 10.0	6 52.7	312 53.2	20 51.5	0.86272	1.29022	6.20	0.7924
	9	0.1094	−0.257	+0.008	102 56.6	6 51.8	311 51.8	20 47.4	+0.85847	+1.28956	−6.29	−0.7988
	10	0.1121	0.250	+0.005	102 50.1	6 51.3	310 50.2	20 43.3	0.85480	1.28891	6.38	0.8050
	11	0.1149	0.243	0.000	102 47.4	6 51.2	309 48.5	20 39.2	0.85214	1.28826	6.47	0.8110
	12	0.1176	0.236	−0.005	102 44.0	6 50.9	308 46.6	20 35.1	0.85072	1.28761	6.56	0.8167
	13	0.1203	0.229	0.009	102 35.9	6 50.4	307 44.5	20 31.0	0.85039	1.28698	6.64	0.8223
	14	0.1231	−0.222	−0.011	102 19.5	6 49.3	306 42.3	20 26.8	+0.85069	+1.28634	−6.72	−0.8276
	15	0.1258	−0.216	−0.010	101 54.2	6 47.6	305 40.0	20 22.7	+0.85106	+1.28570	−6.80	−0.8327

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f	f′	G		H		Log g.	Log h.	i	Log i.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
Feb.	15	0.1258	−0.216	−0.010	101 54.2	6 47.6	305 40.0	20 22.7	+0.85106	+1.28570	−6.80	−0.8327
	16	0.1285	0.209	0.006	101 21.5	6 45.4	304 37.4	20 18.5	0.85089	1.28508	6.88	0.8377
	17	0.1313	0.202	−0.001	100 44.6	6 43.0	303 34.7	20 14.3	0.84979	1.28446	6.96	0.8424
	18	0.1340	0.196	+0.005	100 7.8	6 40.5	302 31.9	20 10.1	0.84758	1.28386	7.03	0.8470
	19	0.1368	0.190	0.010	99 34.8	6 38.3	301 28.9	20 5.9	0.84439	1.28327	7.10	0.8514
h (10.0)	20	0.1395	−0.184	+0.013	99 8.8	6 36.6	300 25.7	20 1.7	+0.84060	+1.28269	−7.17	−0.8556
	21	0.1422	0.178	0.014	98 51.2	6 35.4	299 22.5	19 57.5	0.83667	1.28212	7.24	0.8596
	22	0.1450	0.172	0.012	98 40.8	6 34.7	298 19.1	19 53.3	0.83306	1.28156	7.30	0.8635
	23	0.1477	0.166	0.009	98 36.1	6 34.4	297 15.5	19 49.0	0.83014	1.28102	7.36	0.8671
	24	0.1504	0.160	+0.004	98 33.8	6 34.2	296 11.8	19 44.8	0.82806	1.28049	7.42	0.8707
	25	0.1532	−0.154	−0.001	98 31.6	6 34.1	295 8.0	19 40.5	+0.82680	+1.27998	−7.48	−0.8740
	26	0.1559	0.148	0.005	98 27.6	6 33.8	294 4.1	19 36.3	0.82627	1.27948	7.54	0.8772
	27	0.1587	0.142	0.008	98 19.8	6 33.3	293 0.1	19 32.0	0.82625	1.27900	7.59	0.8803
	28	0.1614	0.136	0.010	98 7.0	6 32.5	291 56.0	19 27.7	0.82654	1.27854	7.64	0.8832
Mar.	1	0.1641	0.131	0.011	97 49.5	6 31.3	290 51.9	19 23.5	0.82689	1.27810	7.69	0.8859
	2	0.1669	−0.125	−0.010	97 26.8	6 29.8	289 47.4	19 19.2	+0.82710	+1.27766	−7.74	−0.8885
	3	0.1696	0.120	0.007	96 59.3	6 28.0	288 42.7	19 14.9	0.82686	1.27724	7.78	0.8909
	4	0.1724	0.114	−0.003	96 28.5	6 25.9	287 38.5	19 10.6	0.82591	1.27686	7.82	0.8932
	5	0.1751	0.109	+0.001	95 57.1	6 23.8	286 33.9	19 6.3	0.82408	1.27650	7.86	0.8953
	6	0.1778	0.103	0.005	95 27.8	6 21.9	285 29.3	19 2.0	0.82138	1.27615	7.90	0.8973
h (11.0)	7	0.1806	−0.098	+0.007	95 3.9	6 20.3	284 24.6	18 57.6	+0.81800	+1.27582	−7.94	−0.8992
	8	0.1833	0.093	0.008	94 47.3	6 19.2	283 19.8	18 53.3	0.81435	1.27552	7.96	0.9009
	9	0.1860	0.088	0.006	94 38.6	6 18.6	282 15.0	18 49.0	0.81105	1.27524	7.99	0.9025
	10	0.1888	0.082	+0.002	94 36.1	6 18.4	281 10.2	18 44.7	0.80863	1.27498	8.02	0.9039
	11	0.1915	0.077	−0.003	94 36.0	6 18.4	280 5.3	18 40.4	0.80755	1.27474	8.04	0.9052
	12	0.1943	−0.072	−0.008	94 33.3	6 18.2	279 0.4	18 36.0	+0.80783	+1.27453	−8.06	−0.9064
	13	0.1970	0.067	0.010	94 23.5	6 17.6	277 55.4	18 31.7	0.80923	1.27434	8.08	0.9074
	14	0.1997	0.062	0.010	94 4.3	6 16.3	276 50.4	18 27.4	0.81110	1.27417	8.10	0.9083
	15	0.2025	0.057	0.007	93 35.9	6 14.4	275 45.5	18 23.0	0.81278	1.27403	8.11	0.9091
	16	0.2052	0.052	−0.002	93 0.5	6 12.0	274 40.5	18 18.7	0.81365	1.27391	8.12	0.9097
	17	0.2079	−0.047	+0.004	92 22.5	6 9.5	273 35.5	18 14.4	+0.81342	+1.27382	−8.13	−0.9102
	18	0.2107	0.042	0.009	91 46.6	6 7.1	272 30.5	18 10.0	0.81201	1.27375	8.14	0.9106
	19	0.2134	0.037	0.013	91 16.1	6 5.1	271 25.5	18 5.7	0.80970	1.27370	8.14	0.9108
	20	0.2162	0.032	0.015	90 54.2	6 3.6	270 20.6	18 1.4	0.80694	1.27368	8.15	0.9109
	21	0.2189	0.027	0.014	90 40.7	6 2.7	269 15.7	17 57.1	0.80424	1.27369	8.15	0.9109
h (12.0)	22	0.2216	−0.022	+0.010	90 34.2	6 2.3	268 10.8	17 52.7	+0.80208	+1.27372	−8.14	−0.9108
	23	0.2244	0.017	0.006	90 32.4	6 2.2	267 5.9	17 48.4	0.80073	1.27377	8.14	0.9105
	24	0.2271	0.012	+0.001	90 32.3	6 2.2	266 1.1	17 44.1	0.80032	1.27385	8.13	0.9101
	25	0.2298	0.007	−0.004	90 30.9	6 2.1	264 56.4	17 39.8	0.80076	1.27395	8.12	0.9095
	26	0.2326	−0.002	0.007	90 26.2	6 1.8	263 51.8	17 35.5	0.80190	1.27408	8.11	0.9088
	27	0.2353	+0.003	−0.010	90 16.9	6 1.1	262 47.2	17 31.1	+0.80351	+1.27423	−8.09	−0.9080
	28	0.2381	0.008	0.011	90 2.5	6 0.2	261 42.8	17 26.8	0.80536	1.27440	8.07	0.9071
	29	0.2408	0.013	0.010	89 42.3	5 58.8	260 38.4	17 22.6	0.80720	1.27459	8.05	0.9060
	30	0.2435	0.018	0.008	89 17.1	5 57.1	259 34.1	17 18.3	0.80875	1.27481	8.03	0.9048
	31	0.2463	0.024	0.005	88 47.2	5 55.1	258 29.9	17 14.0	0.80973	1.27505	8.01	0.9035
Apr.	1	0.2490	+0.029	−0.001	88 14.9	5 53.0	257 25.9	17 9.7	+0.80985	+1.27532	−7.98	−0.9020
	2	0.2518	+0.034	+0.003	87 42.7	5 50.8	256 21.9	17 5.5	+0.80911	+1.27560	−7.95	−0.9004

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	*f*	*f′*	*G*		*H*		Log *g*.	Log *h*.	*i*	Log *i*.
		In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
	y	s	s	° ′	h m	° ′	h m			″	
Apr. 1	0.2490	+ 0.029	− 0.001	88 14.9	5 53.0	257 25.9	17 9.7	+0.80985	+1.27532	− 7.98	− 0.9020
2	0.2518	0.034	+ 0.003	87 42.7	5 50.8	256 21.9	17 5.5	0.80911	1.27560	7.95	0.9004
3	0.2545	0.039	0.006	87 13.4	5 48.9	255 18.1	17 1.2	0.80750	1.27591	7.92	0.8987
4	0.2572	0.045	0.007	86 50.8	5 47.4	254 14.5	16 57.0	0.80536	1.27623	7.89	0.8968
h 5	0.2600	0.050	0.006	86 35.5	5 46.4	253 11.0	16 52.7	0.80322	1.27658	7.85	0.8948
(13.0) 6	0.2627	+ 0.055	+ 0.002	86 27.9	5 45.9	252 7.6	16 48.5	+0.80171	+1.27695	− 7.81	− 0.8927
7	0.2654	0.061	− 0.002	86 24.9	5 45.7	251 4.3	16 44.3	0.80130	1.27733	7.77	0.8904
8	0.2682	0.066	0.007	86 22.0	5 45.5	250 1.3	16 40.1	0.80232	1.27773	7.73	0.8880
9	0.2709	0.072	0.010	86 14.7	5 45.0	248 58.3	16 35.9	0.80468	1.27816	7.68	0.8855
10	0.2737	0.078	0.010	85 58.7	5 43.9	247 55.5	16 31.7	0.80790	1.27860	7.63	0.8828
11	0.2764	+ 0.084	− 0.008	85 33.0	5 42.2	246 52.9	16 27.4	+0.81133	+1.27905	− 7.58	− 0.8799
12	0.2791	0.090	− 0.003	84 58.3	5 39.9	245 50.5	16 23.3	0.81427	1.27952	7.53	0.8770
13	0.2819	0.095	+ 0.003	84 18.8	5 37.2	244 48.2	16 19.2	0.81624	1.28001	7.48	0.8738
14	0.2846	0.101	0.008	83 38.0	5 34.6	243 46.1	16 15.1	0.81701	1.28051	7.42	0.8705
15	0.2873	0.107	0.013	83 1.2	5 32.1	242 44.2	16 10.9	0.81668	1.28102	7.36	0.8671
16	0.2901	+ 0.113	+ 0.015	82 31.0	5 30.1	241 42.4	16 6.8	+0.81558	+1.28155	− 7.30	− 0.8635
17	0.2928	0.119	0.015	82 9.5	5 28.6	240 40.9	16 2.7	0.81420	1.28209	7.24	0.8598
18	0.2956	0.125	0.012	81 56.1	5 27.7	239 39.5	15 58.6	0.81306	1.28264	7.18	0.8559
19	0.2983	0.132	0.008	81 48.6	5 27.2	238 38.3	15 54.6	0.81256	1.28320	7.11	0.8518
h 20	0.3010	0.138	+ 0.003	81 44.5	5 27.0	237 37.2	15 50.5	0.81288	1.28378	7.04	0.8476
(14.0) 21	0.3038	+ 0.145	− 0.002	81 40.8	5 26.7	236 36.5	15 46.4	+0.81408	+1.28436	− 6.97	− 0.8433
22	0.3065	0.151	0.006	81 34.7	5 26.3	235 35.8	15 42.4	0.81604	1.28495	6.90	0.8387
23	0.3092	0.158	0.009	81 25.2	5 25.7	234 35.4	15 38.4	0.81857	1.28555	6.82	0.8340
24	0.3120	0.164	0.011	81 10.9	5 24.7	233 35.2	15 34.4	0.82143	1.28615	6.75	0.8291
25	0.3147	0.171	0.011	80 51.2	5 23.4	232 35.2	15 30.4	0.82445	1.28676	6.67	0.8240
26	0.3175	+ 0.178	− 0.009	80 26.3	5 21.8	231 35.3	15 26.4	+0.82732	+1.28738	− 6.59	− 0.8187
27	0.3202	0.184	0.006	79 56.2	5 19.7	230 35.7	15 22.4	0.82980	1.28800	6.51	0.8132
28	0.3229	0.191	− 0.002	79 22.4	5 17.5	229 36.3	15 18.4	0.83161	1.28863	6.42	0.8076
29	0.3257	0.199	+ 0.002	78 46.7	5 15.1	228 37.1	15 14.5	0.83257	1.28926	6.33	0.8018
30	0.3284	0.206	0.005	78 12.3	5 12.8	227 38.1	15 10.5	0.83263	1.28989	6.25	0.7957
May 1	0.3312	+ 0.213	+ 0.006	77 42.5	5 10.8	226 39.3	15 6.6	+0.83198	+1.29052	− 6.16	− 0.7894
2	0.3339	0.220	0.005	77 18.7	5 9.2	225 40.7	15 2.7	0.83097	1.29115	6.07	0.7830
3	0.3366	0.228	+ 0.002	77 2.7	5 8.2	224 42.3	14 58.8	0.83018	1.29179	5.97	0.7763
4	0.3394	0.235	− 0.002	76 52.7	5 7.5	223 44.1	14 54.9	0.83015	1.29242	5.88	0.7694
h 5	0.3421	0.243	0.007	76 45.8	5 7.1	222 46.1	14 51.1	0.83133	1.29305	5.78	0.7622
(15.0) 6	0.3448	+ 0.250	− 0.011	76 37.3	5 6.5	221 48.4	14 47.2	+0.83385	+1.29368	− 5.69	− 0.7548
7	0.3476	0.258	0.012	76 23.1	5 5.5	220 50.7	14 43.4	0.83744	1.29431	5.59	0.7472
8	0.3503	0.266	0.011	76 0.2	5 4.0	219 53.4	14 39.6	0.84161	1.29493	5.49	0.7393
9	0.3531	0.274	0.007	75 28.2	5 1.9	218 56.2	14 35.7	0.84573	1.29555	5.38	0.7311
10	0.3558	0.282	− 0.001	74 48.6	4 59.2	217 59.2	14 32.0	0.84918	1.29617	5.28	0.7226
11	0.3585	+ 0.290	+ 0.006	74 5.6	4 56.4	217 2.3	14 28.2	+0.85161	+1.29678	− 5.18	− 0.7139
12	0.3613	0.298	0.012	73 23.1	4 53.5	216 5.7	14 24.4	0.85287	1.29738	5.07	0.7048
13	0.3640	0.306	0.015	72 45.1	4 51.0	215 9.2	14 20.6	0.85315	1.29798	4.96	0.6955
14	0.3667	0.315	0.016	72 14.2	4 48.9	214 12.9	14 16.9	0.85286	1.29857	4.85	0.6858
15	0.3695	0.323	0.014	71 51.0	4 47.4	213 16.7	14 13.1	0.85242	1.29915	4.74	0.6758
16	0.3722	+ 0.332	+ 0.010	71 35.1	4 46.3	212 20.8	14 9.4	+0.85228	+1.29973	− 4.63	− 0.6654
17	0.3750	+ 0.341	+ 0.006	71 24.2	4 45.6	211 25.0	14 5.7	+0.85274	+1.30029	− 4.51	− 0.6546

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f	f′	G		H		Log g.	Log h.	i	Log i.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
May	17	0.3750	+0.341	+0.006	71 24.2	4 45.6	211 25.0	14 5.7	+0.85274	+1.30029	−4.51	−0.6546
	18	0.3777	0.349	0.000	71 15.7	4 45.0	210 29.3	14 2.0	0.85395	1.30085	4.40	0.6434
	19	0.3804	0.358	−0.004	71 7.0	4 44.5	209 33.8	13 58.3	0.85586	1.30139	4.28	0.6318
	20	0.3832	0.367	0.008	70 56.0	4 43.7	208 38.5	13 54.6	0.85841	1.30193	4.17	0.6198
h	21	0.3859	0.376	0.010	70 41.3	4 42.8	207 43.4	13 50.9	0.86140	1.30245	4.05	0.6073
(16.0)	22	0.3886	+0.385	−0.010	70 22.4	4 41.5	206 48.3	13 47.2	+0.86464	+1.30297	−3.93	−0.5944
	23	0.3914	0.394	0.009	69 58.3	4 39.9	205 53.5	13 43.6	0.86792	1.30347	3.81	0.5809
	24	0.3941	0.403	0.006	69 29.4	4 38.0	204 58.7	13 39.9	0.87097	1.30395	3.69	0.5668
	25	0.3969	0.412	−0.002	68 56.0	4 35.7	204 4.2	13 36.3	0.87358	1.30443	3.57	0.5522
	26	0.3996	0.421	+0.002	68 19.8	4 33.3	203 9.7	13 32.6	0.87549	1.30489	3.44	0.5369
	27	0.4023	+0.431	+0.005	67 42.6	4 30.8	202 15.4	13 29.0	+0.87659	+1.30533	−3.32	−0.5209
	28	0.4051	0.440	0.006	67 7.3	4 28.5	201 21.2	13 25.4	0.87686	1.30577	3.19	0.5043
	29	0.4078	0.450	0.006	66 36.7	4 26.4	200 27.2	13 21.8	0.87658	1.30619	3.07	0.4868
	30	0.4106	0.459	+0.004	66 12.9	4 24.9	199 33.2	13 18.2	0.87609	1.30659	2.94	0.4685
	31	0.4133	0.468	−0.001	65 56.1	4 23.7	198 39.4	13 14.6	0.87593	1.30698	2.81	0.4493
June	1	0.4160	+0.478	−0.006	65 44.4	4 23.0	197 45.7	13 11.0	+0.87663	+1.30735	−2.69	−0.4290
	2	0.4188	0.487	0.010	65 34.5	4 22.3	196 52.2	13 7.5	0.87846	1.30771	2.56	0.4076
	3	0.4215	0.497	0.013	65 22.5	4 21.5	195 58.7	13 3.9	0.88145	1.30805	2.43	0.3850
	4	0.4242	0.507	0.013	65 4.3	4 20.3	195 5.3	13 0.4	0.88531	1.30837	2.30	0.3611
h	5	0.4270	0.517	0.009	64 37.9	4 18.5	194 12.0	12 56.8	0.88950	1.30868	2.17	0.3356
(17.0)	6	0.4297	+0.527	−0.004	64 3.3	4 16.2	193 18.8	12 53.3	+0.89346	+1.30896	−2.04	−0.3085
	7	0.4325	0.536	+0.003	63 22.7	4 13.5	192 25.7	12 49.7	0.89669	1.30924	1.90	0.2794
	8	0.4352	0.546	0.009	62 39.7	4 10.6	191 32.6	12 46.2	0.89890	1.30949	1.77	0.2480
	9	0.4379	0.556	0.014	61 58.2	4 7.9	190 39.7	12 42.6	0.90008	1.30973	1.64	0.2141
	10	0.4407	0.566	0.016	61 21.1	4 5.4	189 46.8	12 39.1	0.90044	1.30994	1.50	0.1773
	11	0.4434	+0.576	+0.015	60 50.9	4 3.4	188 53.9	12 35.6	+0.90035	+1.31014	−1.37	−0.1368
	12	0.4461	0.586	0.012	60 27.8	4 1.9	188 1.1	12 32.1	0.90021	1.31033	1.24	0.0921
	13	0.4489	0.596	0.008	60 10.9	4 0.7	187 8.3	12 28.6	0.90038	1.31049	1.10	0.0421
	14	0.4516	0.606	+0.002	59 58.0	3 59.9	186 15.6	12 25.0	0.90109	1.31063	0.97	9.9855
	15	0.4544	0.617	−0.002	59 46.7	3 59.1	185 23.0	12 21.5	0.90244	1.31075	0.83	9.9202
	16	0.4571	+0.627	−0.006	59 35.3	3 58.4	184 30.3	12 18.0	+0.90437	+1.31086	−0.70	−9.8433
	17	0.4598	0.637	0.008	59 21.7	3 57.5	183 37.7	12 14.5	0.90680	1.31096	0.56	9.7495
	18	0.4626	0.647	0.009	59 4.9	3 56.3	182 45.1	12 11.0	0.90959	1.31103	0.43	9.6297
	19	0.4653	0.657	0.008	58 44.0	3 54.9	181 52.6	12 7.5	0.91256	1.31108	0.29	9.4634
h	20	0.4680	0.667	0.006	58 18.5	3 53.2	181 0.0	12 4.0	0.91550	1.31111	0.16	9.1904
(18.0)	21	0.4708	+0.677	−0.003	57 48.5	3 51.2	180 7.5	12 0.5	+0.91820	+1.31112	−0.02	−8.2861
	22	0.4735	0.687	+0.001	57 14.6	3 49.0	179 15.0	11 57.0	0.92041	1.31112	+0.12	+9.0668
	23	0.4763	0.697	0.005	56 38.5	3 46.6	178 22.4	11 53.5	0.92196	1.31109	0.25	9.4014
	24	0.4790	0.707	0.007	56 2.0	3 44.1	177 29.9	11 50.0	0.92274	1.31104	0.39	9.5883
	25	0.4817	0.718	0.007	55 26.5	3 41.9	176 37.4	11 46.5	0.92281	1.31098	0.52	9.7184
	26	0.4845	+0.728	+0.006	54 59.8	3 40.0	175 44.8	11 43.0	+0.92244	+1.31090	+0.66	+9.8183
	27	0.4872	0.738	+0.002	54 37.8	3 38.5	174 52.2	11 39.5	0.92201	1.31079	0.79	9.8994
	28	0.4899	0.748	−0.004	54 22.3	3 37.5	173 59.7	11 36.0	0.92202	1.31067	0.93	9.9676
	29	0.4927	0.758	0.009	54 11.5	3 36.8	173 7.0	11 32.5	0.92286	1.31053	1.06	0.0264
	30	0.4954	0.768	0.013	54 1.7	3 36.1	172 14.4	11 29.0	0.92475	1.31037	1.20	0.0780
July	1	0.4982	+0.778	−0.014	53 49.1	3 35.3	171 21.7	11 25.5	+0.92763	+1.31020	+1.33	+0.1241
	2	0.5009	+0.788	−0.012	53 30.3	3 34.0	170 29.0	11 21.9	+0.93118	+1.31001	+1.46	+0.1656

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	*f*	*f'*	*G*		*H*		Log *g*.	Log *h*.	*i*	Log *i*.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
July	1	0.4982	+ 0.778	− 0.014	53 49.1	3 35.3	171 21.7	11 25.5	+0.92763	+1.31020	+ 1.33	+ 0.1241
	2	0.5009	0.788	0.012	53 30.3	3 34.0	170 29.0	11 21.9	0.93118	1.31001	1.46	0.1656
	3	0.5036	0.798	0.007	53 4.1	3 32.3	169 36.3	11 18.4	0.93489	1.30979	1.60	0.2034
	4	0.5064	0.808	− 0.001	52 30.5	3 30.0	168 43.5	11 14.9	0.93824	1.30956	1.73	0.2380
	5	0.5091	0.818	+ 0.006	51 52.4	3 27.5	167 50.6	11 11.4	0.94083	1.30931	1.86	0.2700
h	6	0.5119	+ 0.828	+ 0.011	51 12.5	3 24.8	166 57.7	11 7.9	+0.94251	+1.30905	+ 1.99	+ 0.2997
(19.0)	7	0.5146	0.838	0.014	50 34.8	3 22.3	166 4.7	11 4.3	0.94326	1.30877	2.13	0.3273
	8	0.5173	0.847	0.015	50 1.6	3 20.1	165 11.6	11 0.8	0.94337	1.30847	2.26	0.3532
	9	0.5201	0.857	0.013	49 34.7	3 18.3	164 18.5	10 57.2	0.94315	1.30815	2.39	0.3775
	10	0.5228	0.867	0.009	49 14.5	3 17.0	163 25.2	10 53.7	0.94293	1.30782	2.51	0.4004
	11	0.5255	+ 0.876	+ 0.004	48 59.3	3 16.0	162 31.9	10 50.1	+0.94305	+1.30747	+ 2.64	+ 0.4221
	12	0.5283	0.886	− 0.001	48 47.5	3 15.2	161 38.5	10 46.6	0.94366	1.30710	2.77	0.4426
	13	0.5310	0.895	0.005	48 37.0	3 14.5	160 44.9	10 43.0	0.94480	1.30672	2.90	0.4621
	14	0.5338	0.905	0.008	48 26.0	3 13.7	159 51.3	10 39.4	0.94647	1.30633	3.02	0.4806
	15	0.5365	0.914	0.009	48 12.8	3 12.9	158 57.6	10 35.8	0.94857	1.30592	3.15	0.4983
	16	0.5392	+ 0.924	− 0.008	47 56.7	3 11.8	158 3.7	10 32.2	+0.95094	+1.30549	+ 3.28	+ 0.5152
	17	0.5420	0.933	0.007	47 36.8	3 10.5	157 9.7	10 28.6	0.95341	1.30505	3.40	0.5313
	18	0.5447	0.942	− 0.004	47 12.8	3 8.9	156 15.6	10 25.0	0.95584	1.30460	3.52	0.5467
	19	0.5474	0.951	0.000	46 44.6	3 7.0	155 21.4	10 21.4	0.95799	1.30413	3.64	0.5615
	20	0.5502	0.960	+ 0.004	46 12.8	3 4.9	154 27.1	10 17.8	0.95963	1.30365	3.76	0.5757
h	21	0.5529	+ 0.969	+ 0.007	45 39.3	3 2.6	153 32.6	10 14.2	+0.96067	+1.30316	+ 3.88	+ 0.5893
(20.0)	22	0.5557	0.978	0.008	45 6.7	3 0.4	152 38.0	10 10.5	0.96097	1.30265	4.00	0.6024
	23	0.5584	0.987	0.007	44 37.2	2 58.5	151 43.3	10 6.9	0.96071	1.30214	4.12	0.6150
	24	0.5611	0.996	+ 0.004	44 13.2	2 56.9	150 48.4	10 3.2	0.96010	1.30161	4.24	0.6271
	25	0.5639	1.005	− 0.001	43 55.8	2 55.7	149 53.3	9 59.6	0.95959	1.30107	4.35	0.6387
	26	0.5666	+ 1.013	− 0.007	43 44.7	2 55.0	148 58.2	9 55.9	+0.95958	+1.30053	+ 4.47	+ 0.6500
	27	0.5693	1.022	0.011	43 37.3	2 54.5	148 2.9	9 52.2	0.96042	1.29997	4.58	0.6609
	28	0.5721	1.030	0.014	43 30.5	2 54.0	147 7.4	9 48.5	0.96222	1.29940	4.69	0.6713
	29	0.5748	1.039	0.013	43 20.3	2 53.4	146 11.8	9 44.8	0.96482	1.29884	4.80	0.6814
	30	0.5776	1.047	0.009	43 4.0	2 52.3	145 16.0	9 41.1	0.96792	1.29825	4.91	0.6912
	31	0.5803	+ 1.056	− 0.003	42 40.4	2 50.7	144 20.0	9 37.3	+0.97101	+1.29766	+ 5.02	+ 0.7006
Aug.	1	0.5830	1.064	+ 0.003	42 10.7	2 48.7	143 23.9	9 33.6	0.97367	1.29706	5.12	0.7097
	2	0.5858	1.072	0.009	41 37.3	2 46.5	142 27.7	9 29.8	0.97557	1.29646	5.23	0.7185
	3	0.5885	1.080	0.013	41 3.4	2 44.2	141 31.2	9 26.0	0.97662	1.29585	5.33	0.7270
	4	0.5913	1.088	0.014	40 32.2	2 42.1	140 34.6	9 22.3	0.97686	1.29524	5.44	0.7354
h	5	0.5940	+ 1.096	+ 0.013	40 5.9	2 40.4	139 37.8	9 18.5	+0.97661	+1.29462	+ 5.54	+ 0.7433
(21.0)	6	0.5967	1.104	0.010	39 45.7	2 39.0	138 40.8	9 14.7	0.97614	1.29400	5.64	0.7510
	7	0.5995	1.111	+ 0.005	39 31.0	2 38.1	137 43.7	9 10.9	0.97580	1.29338	5.73	0.7584
	8	0.6022	1.119	0.000	39 20.8	2 37.4	136 46.3	9 7.1	0.97583	1.29275	5.83	0.7656
	9	0.6049	1.127	− 0.004	39 13.2	2 36.9	135 48.8	9 3.3	0.97632	1.29213	5.92	0.7726
	10	0.6077	+ 1.134	− 0.007	39 6.5	2 36.4	134 51.1	8 59.4	+0.97731	+1.29150	+ 6.02	+ 0.7794
	11	0.6104	1.142	0.009	38 58.8	2 35.9	133 53.2	8 55.5	0.97874	1.29087	6.11	0.7859
	12	0.6132	1.149	0.009	38 49.3	2 35.4	132 55.1	8 51.7	0.98053	1.29024	6.20	0.7922
	13	0.6159	1.156	0.007	38 36.8	2 34.5	131 56.8	8 47.8	0.98253	1.28962	6.29	0.7983
	14	0.6186	1.163	0.005	38 20.6	2 33.4	130 58.3	8 43.9	0.98463	1.28900	6.37	0.8042
	15	0.6214	+ 1.170	− 0.001	38 0.4	2 32.0	129 59.6	8 40.0	+0.98660	+1.28837	+ 6.45	+ 0.8099
	16	0.6241	+ 1.177	+ 0.003	37 36.2	2 30.4	129 0.7	8 36.1	+0.98828	+1.28775	+ 6.54	+ 0.8154

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f′	f″	G		H		Log g.	Log h.	i	Log i.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
Aug.	16	0.6241	+ 1.177	+ 0.003	37 36.2	2 30.4	129 0.7	8 36.1	+0.98828	+1.28775	+ 6.54	+ 0.8154
	17	0.6268	1.184	0.006	37 9.5	2 28.6	128 1.7	8 32.1	0.98943	1.28714	6.62	0.8208
	18	0.6296	1.191	0.008	36 41.7	2 26.8	127 2.4	8 28.1	0.98999	1.28653	6.70	0.8259
	19	0.6323	1.197	0.008	36 15.3	2 25.0	126 3.0	8 24.2	0.98991	1.28593	6.77	0.8309
h	20	0.6351	1.204	0.006	35 53.2	2 23.5	125 3.3	8 20.2	0.98941	1.28534	6.85	0.8357
(22.0)	21	0.6378	+ 1.211	+ 0.001	35 37.1	2 22.5	124 3.5	8 16.2	+0.98868	+1.28475	+ 6.92	+ 0.8403
	22	0.6405	1.217	− 0.004	35 27.4	2 21.8	123 3.5	8 12.2	0.98825	1.28416	6.99	0.8447
	23	0.6433	1.224	0.009	35 23.3	2 21.6	122 3.3	8 8.2	0.98838	1.28359	7.06	0.8490
	24	0.6460	1.230	0.012	35 21.8	2 21.5	121 3.0	8 4.2	0.98938	1.28303	7.13	0.8531
	25	0.6487	1.236	0.013	35 19.7	2 21.3	120 2.4	8 0.2	0.99125	1.28248	7.20	0.8571
	26	0.6515	+ 1.242	− 0.010	35 13.4	2 20.9	119 1.7	7 56.1	+0.99378	+1.28194	+ 7.26	+ 0.8609
	27	0.6542	1.248	− 0.005	35 0.8	2 20.1	118 0.8	7 52.1	0.99661	1.28140	7.32	0.8645
	28	0.6570	1.254	+ 0.001	34 41.9	2 18.8	116 59.8	7 48.0	0.99925	1.28089	7.38	0.8680
	29	0.6597	1.260	0.007	34 17.8	2 17.2	115 58.5	7 43.9	1.00132	1.28038	7.44	0.8714
	30	0.6624	1.266	0.012	33 51.5	2 15.4	114 57.1	7 39.8	1.00264	1.27989	7.49	0.8746
	31	0.6652	+ 1.272	+ 0.014	33 25.7	2 13.7	113 55.6	7 35.7	+1.00316	+1.27941	+ 7.54	+ 0.8776
Sept.	1	0.6679	1.278	0.013	33 3.5	2 12.2	112 53.9	7 31.6	1.00304	1.27895	7.59	0.8805
	2	0.6707	1.284	0.010	32 46.5	2 11.1	111 52.0	7 27.5	1.00259	1.27851	7.64	0.8833
	3	0.6734	1.290	0.006	32 35.1	2 10.3	110 50.0	7 23.3	1.00210	1.27808	7.69	0.8860
h	4	0.6761	1.295	+ 0.001	32 28.6	2 9.9	109 47.8	7 19.2	1.00183	1.27766	7.74	0.8884
(23.0)	5	0.6789	+ 1.301	− 0.003	32 25.8	2 9.7	108 45.5	7 15.0	+1.00198	+1.27727	+ 7.78	+ 0.8908
	6	0.6816	1.306	0.007	32 24.7	2 9.6	107 43.0	7 10.9	1.00261	1.27689	7.82	0.8930
	7	0.6843	1.312	0.009	32 23.9	2 9.6	106 40.4	7 6.7	1.00370	1.27653	7.86	0.8951
	8	0.6871	1.317	0.010	32 21.7	2 9.4	105 37.6	7 2.5	1.00520	1.27619	7.89	0.8971
	9	0.6898	1.323	0.008	32 17.4	2 9.2	104 34.7	6 58.3	1.00697	1.27587	7.92	0.8989
	10	0.6926	+ 1.328	− 0.006	32 9.9	2 8.7	103 31.7	6 54.1	+1.00892	+1.27555	+ 7.95	+ 0.9006
	11	0.6953	1.334	− 0.003	31 58.5	2 7.9	102 28.6	6 49.9	1.01090	1.27529	7.98	0.9022
	12	0.6980	1.339	+ 0.001	31 43.5	2 6.9	101 25.4	6 45.7	1.01268	1.27504	8.01	0.9036
	13	0.7008	1.344	0.005	31 24.9	2 5.7	100 22.0	6 41.5	1.01412	1.27481	8.03	0.9049
	14	0.7035	1.349	0.007	31 4.5	2 4.3	99 18.5	6 37.2	1.01507	1.27459	8.05	0.9061
	15	0.7062	+ 1.355	+ 0.008	30 44.5	2 3.0	98 15.0	6 33.0	+1.01538	+1.27439	+ 8.07	+ 0.9071
	16	0.7090	1.360	0.006	30 27.0	2 1.8	97 11.3	6 28.8	1.01521	1.27422	8.09	0.9080
	17	0.7117	1.365	+ 0.002	30 14.4	2 1.0	96 7.6	6 24.5	1.01475	1.27408	8.11	0.9088
	18	0.7145	1.370	− 0.002	30 7.8	2 0.5	95 3.8	6 20.3	1.01434	1.27395	8.13	0.9095
	19	0.7172	1.375	0.007	30 7.3	2 0.5	93 59.9	6 16.0	1.01434	1.27385	8.13	0.9100
h	20	0.7199	+ 1.381	− 0.011	30 11.0	2 0.7	92 56.0	6 11.7	+1.01507	+1.27377	+ 8.14	+ 0.9104
(0.0)	21	0.7227	1.386	0.012	30 15.8	2 1.1	91 52.0	6 7.5	1.01665	1.27372	8.14	0.9107
	22	0.7254	1.391	0.010	30 18.1	2 1.2	90 48.0	6 3.2	1.01899	1.27369	8.14	0.9109
	23	0.7281	1.396	− 0.006	30 15.5	2 1.0	89 43.9	5 58.9	1.02179	1.27368	8.15	0.9109
	24	0.7309	1.401	0.000	30 6.5	2 0.4	88 39.8	5 54.7	1.02465	1.27370	8.14	0.9108
	25	0.7336	+ 1.406	+ 0.006	29 51.9	1 59.5	87 35.7	5 50.4	+1.02714	+1.27374	+ 8.14	+ 0.9106
	26	0.7364	1.411	0.011	29 33.6	1 58.2	86 31.6	5 46.1	1.02899	1.27381	8.13	0.9103
	27	0.7391	1.416	0.014	29 14.6	1 57.0	85 27.4	5 41.8	1.03005	1.27390	8.12	0.9098
	28	0.7418	1.422	0.014	28 57.8	1 55.9	84 23.3	5 37.5	1.03043	1.27401	8.11	0.9092
	29	0.7446	1.427	0.012	28 45.0	1 55.0	83 19.2	5 33.3	1.03038	1.27415	8.10	0.9084
	30	0.7473	+ 1.432	+ 0.008	28 37.5	1 54.5	82 15.0	5 29.0	+1.03016	+1.27431	+ 8.08	+ 0.9076
Oct.	1	0.7501	+ 1.437	+ 0.003	28 35.3	1 54.4	81 10.9	5 24.7	+1.03006	+1.27449	+ 8.06	+ 0.9066

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f′	f″	G		H		Log g.	Log h.	i	Log i.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			″	
Oct.	1	0.7501	+ 1.437	+ 0.003	28 35.3	1 54.4	81 10.9	5 24.7	+1.03006	+1.27449	+ 8.06	+ 0.9066
	2	0.7528	1.443	– 0.002	28 36.9	1 54.5	80 6.8	5 20.5	1.03030	1.27470	8.04	0.9055
	3	0.7555	1.448	0.006	28 40.9	1 54.7	79 2.8	5 16.2	1.03101	1.27493	8.02	0.9042
	4	0.7583	1.453	0.009	28 45.6	1 55.0	77 58.7	5 11.9	1.03221	1.27518	8.00	0.9028
h	5	0.7610	1.459	0.010	28 49.5	1 55.3	76 54.7	5 7.6	1.03382	1.27545	7.97	0.9013
(1.0)	6	0.7637	+ 1.464	– 0.009	28 51.6	1 55.4	75 50.8	5 3.4	+1.03576	+1.27575	+ 7.94	+ 0.8996
	7	0.7665	1.470	0.006	28 50.9	1 55.4	74 46.9	4 59.1	1.03795	1.27607	7.90	0.8978
	8	0.7692	1.475	– 0.003	28 46.8	1 55.1	73 43.0	4 54.9	1.04020	1.27640	7.87	0.8959
	9	0.7720	1.481	0.000	28 39.0	1 54.6	72 39.2	4 50.6	1.04236	1.27676	7.83	0.8938
	10	0.7747	1.486	+ 0.003	28 27.8	1 53.8	71 35.5	4 46.4	1.04427	1.27714	7.79	0.8916
	11	0.7774	+ 1.492	+ 0.006	28 14.1	1 52.9	70 31.9	4 42.1	+1.04579	+1.27754	+ 7.75	+ 0.8892
	12	0.7802	1.498	0.007	27 59.7	1 52.0	69 28.3	4 37.9	1.04678	1.27795	7.70	0.8867
	13	0.7829	1.503	0.006	27 46.6	1 51.1	68 24.8	4 33.7	1.04727	1.27839	7.66	0.8841
	14	0.7856	1.509	+ 0.003	27 37.0	1 50.5	67 21.4	4 29.4	1.04742	1.27884	7.61	0.8813
	15	0.7884	1.515	– 0.002	27 32.6	1 50.2	66 18.1	4 25.2	1.04748	1.27931	7.56	0.8783
	16	0.7911	+ 1.521	– 0.006	27 34.1	1 50.3	65 14.9	4 21.0	+1.04784	+1.27980	+ 7.50	+ 0.8752
	17	0.7939	1.527	0.011	27 39.9	1 50.7	64 11.9	4 16.8	1.04875	1.28030	7.45	0.8719
	18	0.7966	1.533	0.013	27 47.8	1 51.2	63 8.9	4 12.6	1.05047	1.28081	7.39	0.8685
	19	0.7993	1.539	0.012	27 54.8	1 51.7	62 6.0	4 8.4	1.05299	1.28135	7.33	0.8649
h	20	0.8021	1.546	0.008	27 57.8	1 51.9	61 3.3	4 4.2	1.05606	1.28189	7.26	0.8612
(2.0)	21	0.8048	+ 1.552	– 0.002	27 55.2	1 51.7	60 0.7	4 0.0	+1.05935	+1.28245	+ 7.20	+ 0.8573
	22	0.8075	1.558	+ 0.005	27 46.8	1 51.1	58 58.2	3 55.9	1.06245	1.28302	7.13	0.8532
	23	0.8103	1.565	0.011	27 33.9	1 50.3	57 55.9	3 51.7	1.06507	1.28360	7.06	0.8489
	24	0.8130	1.571	0.014	27 19.1	1 49.3	56 53.7	3 47.6	1.06690	1.28419	6.99	0.8445
	25	0.8158	1.578	0.016	27 5.1	1 48.3	55 51.7	3 43.4	1.06807	1.28478	6.92	0.8399
	26	0.8185	+ 1.585	+ 0.014	26 54.3	1 47.6	54 49.7	3 39.3	+1.06873	+1.28540	+ 6.84	+ 0.8351
	27	0.8212	1.592	0.010	26 47.9	1 47.2	53 47.9	3 35.2	1.06912	1.28602	6.76	0.8301
	28	0.8240	1.599	+ 0.005	26 46.4	1 47.1	52 46.3	3 31.1	1.06951	1.28665	6.68	0.8249
	29	0.8267	1.606	0.000	26 48.8	1 47.3	51 44.8	3 27.0	1.07016	1.28728	6.60	0.8196
	30	0.8295	1.613	– 0.005	26 53.9	1 47.6	50 43.5	3 22.9	1.07121	1.28792	6.52	0.8140
	31	0.8322	+ 1.620	– 0.008	26 59.9	1 48.0	49 42.3	3 18.8	+1.07273	+1.28856	+ 6.43	+ 0.8082
Nov.	1	0.8349	1.627	0.009	27 5.5	1 48.4	48 41.3	3 14.7	1.07469	1.28921	6.34	0.8022
	2	0.8377	1.635	0.009	27 9.6	1 48.6	47 40.4	3 10.7	1.07696	1.28986	6.25	0.7959
	3	0.8404	1.643	0.007	27 11.1	1 48.7	46 39.7	3 6.7	1.07949	1.29052	6.16	0.7895
h	4	0.8431	1.651	0.005	27 9.5	1 48.6	45 39.1	3 2.6	1.08214	1.29117	6.06	0.7828
(3.0)	5	0.8459	+ 1.659	– 0.001	27 4.7	1 48.3	44 38.7	2 58.6	+1.08474	+1.29183	+ 5.97	+ 0.7759
	6	0.8486	1.666	+ 0.002	26 56.3	1 47.8	43 38.4	2 54.6	1.08717	1.29248	5.87	0.7687
	7	0.8513	1.674	0.005	26 45.3	1 47.0	42 38.3	2 50.6	1.08927	1.29314	5.77	0.7612
	8	0.8541	1.682	0.007	26 32.7	1 46.2	41 38.3	2 46.6	1.09092	1.29380	5.67	0.7535
	9	0.8568	1.690	0.006	26 20.5	1 45.4	40 38.5	2 42.6	1.09210	1.29444	5.57	0.7455
	10	0.8596	+ 1.698	+ 0.004	26 10.6	1 44.7	39 38.8	2 38.6	+1.09289	+1.29509	+ 5.46	+ 0.7372
	11	0.8623	1.706	– 0.001	26 4.8	1 44.3	38 39.3	2 34.6	1.09352	1.29574	5.35	0.7286
	12	0.8650	1.714	0.006	26 4.0	1 44.3	37 39.9	2 30.7	1.09426	1.29638	5.24	0.7197
	13	0.8678	1.723	0.011	26 7.6	1 44.5	36 40.6	2 26.7	1.09543	1.29701	5.13	0.7105
	14	0.8705	1.731	0.014	26 13.8	1 44.9	35 41.5	2 22.8	1.09729	1.29764	5.02	0.7009
	15	0.8733	+ 1.740	– 0.014	26 20.0	1 45.3	34 42.5	2 18.8	+1.09986	+1.29826	+ 4.91	+ 0.6909
	16	0.8760	+ 1.748	– 0.010	26 23.4	1 45.6	33 43.7	2 14.9	+1.10306	+1.29888	+ 4.79	+ 0.6806

(CONSTANTS OF PARIS CONFERENCE.)

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	*f*	*f*′	*G*		*H*		Log *g*.	Log *h*.	*i*	Log *i*.
			In Time.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	s	s	° ′	h m	° ′	h m			"	
Nov.	16	0.8760	+ 1.748	− 0.010	26 23.4	1 45.6	33 43.7	2 14.9	+1.10306	+1.29888	+ 4.79	+ 0.6806
	17	0.8787	1.757	0.005	26 22.0	1 45.5	32 45.0	2 11.0	1.10657	1.29948	4.68	0.6699
	18	0.8815	1.766	− 0.002	26 15.0	1 45.0	31 46.4	2 7.1	1.11007	1.30008	4.56	0.6588
	19	0.8842	1.775	+ 0.002	26 3.3	1 44.2	30 48.0	2 3.2	1.11319	1.30066	4.44	0.6472
h	20	0.8869	1.785	0.008	25 48.7	1 43.2	29 49.8	1 59.3	1.11570	1.30124	4.32	0.6352
(4.0)	21	0.8897	+ 1.794	+ 0.014	25 33.8	1 42.3	28 51.6	1 55.4	+1.11756	+1.30180	+ 4.20	+ 0.6227
	22	0.8924	1.803	0.015	25 20.9	1 41.4	27 53.6	1 51.6	1.11884	1.30235	4.07	0.6097
	23	0.8952	1.812	0.012	25 11.7	1 40.8	26 55.8	1 47.7	1.11974	1.30290	3.95	0.5961
	24	0.8979	1.822	0.007	25 6.6	1 40.4	25 58.0	1 43.9	1.12056	1.30343	3.82	0.5820
	25	0.9006	1.832	+ 0.002	25 5.5	1 40.4	25 0.4	1 40.0	1.12149	1.30394	3.69	0.5672
	26	0.9034	+ 1.841	− 0.003	25 7.2	1 40.5	24 2.8	1 36.2	+1.12273	+1.30444	+ 3.56	+ 0.5518
	27	0.9061	1.851	0.006	25 10.2	1 40.7	23 5.4	1 32.4	1.12436	1.30492	3.43	0.5357
	28	0.9088	1.861	0.008	25 13.1	1 40.9	22 8.2	1 28.6	1.12637	1.30539	3.30	0.5188
	29	0.9116	1.871	0.008	25 14.8	1 41.0	21 11.0	1 24.7	1.12871	1.30585	3.17	0.5010
	30	0.9143	1.881	0.007	25 14.5	1 41.0	20 13.9	1 20.9	1.13128	1.30629	3.04	0.4824
Dec.	1	0.9171	+ 1.891	− 0.005	25 11.3	1 40.8	19 16.9	1 17.1	+1.13398	+1.30671	+ 2.90	+ 0.4627
	2	0.9198	1.901	− 0.002	25 5.2	1 40.3	18 20.0	1 13.3	1.13670	1.30711	2.77	0.4420
	3	0.9225	1.911	+ 0.002	24 56.1	1 39.7	17 23.1	1 9.5	1.13928	1.30750	2.63	0.4201
	4	0.9253	1.921	0.005	24 44.2	1 39.0	16 26.4	1 5.8	1.14160	1.30787	2.49	0.3969
h	5	0.9280	1.932	0.007	24 30.5	1 38.0	15 29.7	1 2.0	1.14351	1.30822	2.36	0.3722
(5.0)	6	0.9308	+ 1.942	+ 0.007	24 16.3	1 37.1	14 33.1	0 58.2	+1.14503	+1.30855	+ 2.22	+ 0.3459
	7	0.9335	1.952	0.005	24 3.5	1 36.2	13 36.6	0 54.4	1.14613	1.30887	2.08	0.3178
	8	0.9362	1.963	+ 0.001	23 53.7	1 35.6	12 40.2	0 50.7	1.14696	1.30917	1.94	0.2875
	9	0.9390	1.973	− 0.005	23 47.9	1 35.2	11 43.7	0 46.9	1.14778	1.30944	1.80	0.2548
	10	0.9417	1.984	0.010	23 46.5	1 35.1	10 47.3	0 43.2	1.14883	1.30969	1.66	0.2192
	11	0.9444	+ 1.994	− 0.014	23 48.2	1 35.2	9 51.0	0 39.4	+1.15040	+1.30993	+ 1.52	+ 0.1804
	12	0.9472	2.005	0.015	23 50.7	1 35.4	8 54.7	0 35.6	1.15260	1.31014	1.37	0.1375
	13	0.9499	2.015	0.013	23 51.9	1 35.5	7 58.5	0 31.9	1.15539	1.31033	1.23	0.0898
	14	0.9527	2.026	0.008	23 49.3	1 35.3	7 2.3	0 28.2	1.15861	1.31051	1.09	0.0360
	15	0.9554	2.037	− 0.001	23 41.8	1 34.8	6 6.1	0 24.4	1.16193	1.31066	0.94	9.9744
	16	0.9581	+ 2.047	+ 0.006	23 29.5	1 34.0	5 10.0	0 20.7	+1.16507	+1.31079	+ 0.80	+ 9.9025
	17	0.9609	2.058	0.012	23 13.8	1 32.9	4 13.8	0 16.9	1.16774	1.31090	0.66	9.8160
	18	0.9636	2.069	0.015	22 56.7	1 31.8	3 17.7	0 13.2	1.16981	1.31098	0.51	9.7078
	19	0.9663	2.080	0.016	22 40.5	1 30.7	2 21.6	0 9.4	1.17131	1.31105	0.37	9.5631
h	20	0.9691	2.091	0.014	22 27.0	1 29.8	1 25.6	0 5.7	1.17237	1.31109	0.22	9.3443
(6.0)	21	0.9718	+ 2.102	+ 0.010	22 17.2	1 29.1	0 29.5	0 2.0	+1.17321	+1.31112	+ 0.08	+ 8.8816
	22	0.9746	2.112	+ 0.004	22 11.3	1 28.8	359 33.4	23 58.2	1.17403	1.31112	− 0.07	− 8.8369
	23	0.9773	2.123	− 0.001	22 8.3	1 28.6	358 37.3	23 54.5	1.17506	1.31110	0.21	9.3294
	24	0.9800	2.134	0.005	22 7.1	1 28.5	357 41.2	23 50.7	1.17639	1.31105	0.36	9.5542
	25	0.9828	2.145	0.007	22 6.4	1 28.4	356 45.1	23 47.0	1.17803	1.31099	0.50	9.7015
	26	0.9855	+ 2.155	− 0.008	22 5.1	1 28.3	355 49.0	23 43.3	+1.17998	+1.31090	− 0.65	− 9.8112
	27	0.9882	2.166	0.007	22 2.2	1 28.2	354 52.8	23 39.5	1.18216	1.31079	0.79	9.8985
	28	0.9910	2.177	0.005	21 57.2	1 27.8	353 56.7	23 35.8	1.18449	1.31069	0.94	9.9711
	29	0.9937	2.188	− 0.002	21 49.6	1 27.3	353 0.4	23 32.0	1.18687	1.31052	1.08	0.0332
	30	0.9965	2.198	+ 0.002	21 39.3	1 26.6	352 4.2	23 28.3	1.18915	1.31034	1.22	0.0874
	31	0.9992	+ 2.209	+ 0.005	21 26.3	1 25.8	351 7.9	23 24.5	+1.19127	+1.31015	− 1.37	− 0.1354
	32	1.0019	+ 2.220	+ 0.007	21 11.4	1 24.8	350 11.5	23 20.8	+1.19307	+1.30994	− 1.51	− 0.1786

(CONSTANTS OF PARIS CONFERENCE.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Jan.	1 25	+88 48	Jan.	6 57	+87 11	Jan.	12 14	+88 12	Jan.	18 2	+86 36	Jan.	19 14	+88 59
	s	″		s	″		s	″		s	″		s	″
0.3	40.47	32.3	0.5	0.64	43.1	0.7	12.24	59.7	0.9	16.97	54.4	1.0	44.22	66.0
1.3	39.40	32.4	1.5	0.71	43.4	1.7	12.98	59.7	1.9	17.01	54.1	2.0	43.98	65.6
2.3	38.36	32.5	2.5	0.77	43.8	2.7	13.69	59.7	2.9	17.06	53.7	3.0	43.77	65.3
3.3	37.37	32.5	3.5	0.84	44.1	3.7	14.38	59.7	3.9	17.11	53.4	4.0	43.56	65.0
4.3	36.43	32.6	4.5	0.91	44.4	4.7	15.03	59.7	4.9	17.16	53.1	5.0	43.31	64.7
5.3	35.52	32.7	5.5	0.99	44.7	5.7	15.68	59.7	5.9	17.19	52.8	6.0	43.02	64.4
6.3	34.62	32.8	6.5	1.07	44.9	6.7	16.34	59.7	6.9	17.21	52.5	7.0	42.69	64.1
7.3	33.68	32.9	7.5	1.16	45.2	7.7	17.03	59.6	7.9	17.23	52.2	8.0	42.34	63.8
8.3	32.71	33.0	8.5	1.27	45.6	8.7	17.76	59.6	8.9	17.26	51.8	9.0	41.98	63.5
9.3	31.66	33.1	9.5	1.38	45.9	9.7	18.52	59.6	9.9	17.29	51.4	9.9	41.65	63.1
10.3	30.55	33.2	10.5	1.46	46.2	10.7	19.32	59.6	10.9	17.34	51.1	10.9	41.38	62.8
11.3	29.41	33.3	11.5	1.52	46.6	11.7	20.12	59.7	11.9	17.42	50.7	11.9	41.18	62.4
12.2	28.23	33.4	12.5	1.57	47.0	12.7	20.92	59.7	12.9	17.53	50.3	12.9	41.05	62.0
13.2	27.06	33.4	13.5	1.57	47.4	13.7	21.71	59.8	13.9	17.65	50.0	13.9	41.01	61.7
14.2	25.91	33.4	14.5	1.54	47.7	14.7	22.46	59.9	14.9	17.79	49.6	14.9	41.03	61.3
15.2	24.80	33.4	15.5	1.50	48.0	15.7	23.16	60.0	15.9	17.93	49.3	15.9	41.10	61.0
16.2	23.75	33.4	16.5	1.45	48.4	16.7	23.83	60.1	16.9	18.08	49.0	16.9	41.19	60.6
17.2	22.76	33.4	17.5	1.40	48.7	17.7	24.46	60.2	17.9	18.21	48.7	17.9	41.27	60.3
18.2	21.79	33.4	18.5	1.35	49.0	18.7	25.07	60.3	18.9	18.33	48.4	18.9	41.33	60.0
19.2	20.87	33.4	19.5	1.32	49.2	19.7	25.68	60.4	19.9	18.45	48.1	19.9	41.34	59.7
20.2	19.95	33.4	20.5	1.31	49.5	20.7	26.31	60.5	20.9	18.55	47.8	20.9	41.33	59.4
21.2	18.96	33.5	21.5	1.29	49.8	21.7	26.97	60.5	21.9	18.66	47.5	21.9	41.29	59.1
22.2	17.96	33.5	22.5	1.28	50.1	22.7	27.65	60.6	22.9	18.77	47.2	22.9	41.26	58.8
23.2	16.90	33.5	23.5	1.26	50.5	23.7	28.37	60.7	23.9	18.90	46.9	23.9	41.29	58.4
24.2	15.78	33.5	24.4	1.23	50.8	24.7	29.12	60.8	24.9	19.05	46.5	24.9	41.36	58.1
25.2	14.63	33.5	25.4	1.16	51.2	25.7	29.86	60.9	25.9	19.23	46.2	25.9	41.53	57.7
26.2	13.45	33.5	26.4	1.05	51.5	26.7	30.58	61.1	26.9	19.44	45.9	26.9	41.79	57.3
27.2	12.28	33.4	27.4	0.91	51.9	27.7	31.29	61.2	27.9	19.67	45.5	27.9	42.14	57.0
28.2	11.15	33.3	28.4	0.74	52.2	28.7	31.96	61.4	28.9	19.92	45.2	28.9	42.56	56.6
29.2	10.06	33.2	29.4	0.57	52.5	29.7	32.58	61.6	29.9	20.17	45.0	29.9	43.02	56.3
30.2	9.03	33.1	30.4	0.38	52.8	30.6	33.16	61.8	30.9	20.41	44.7	30.9	43.48	56.0
31.2	8.07	33.0	31.4	0.20	53.1	31.6	33.70	62.0	31.9	20.65	44.5	31.9	43.93	55.7
32.2	7.15	32.9	32.4	0.02	53.3	32.6	34.23	62.1	32.9	20.87	44.2	32.9	44.35	55.4

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Feb	1 24	+88 48	Feb.	6 56	+87 11	Feb.	12 14	+88 13	Feb.	18 2	+86 36	Feb.	19 14	+88 59
	s	″		s	″		s	″		s	″		s	″
1.2	67.15	32.9	1.4	60.02	53.3	1.6	34.23	2.1	1.9	20.87	44.2	1.9	44.35	55.4
2.2	66.24	32.8	2.4	59.87	53.6	2.6	34.77	2.3	2.9	21.08	44.0	2.9	44.73	55.1
3.2	65.34	32.7	3.4	59.72	53.9	3.6	35.32	2.4	3.9	21.28	43.7	3.9	45.08	54.9
4.2	64.41	32.7	4.4	59.58	54.2	4.6	35.89	2.5	4.9	21.49	43.5	4.9	45.40	54.6
5.2	63.43	32.6	5.4	59.44	54.5	5.6	36.49	2.7	5.9	21.70	43.2	5.9	45.74	54.3
6.2	62.41	32.5	6.4	59.29	54.8	6.6	37.12	2.9	6.9	21.92	42.9	6.9	46.13	53.9
7.2	61.34	32.4	7.4	59.12	55.1	7.6	37.76	3.1	7.9	22.17	42.6	7.9	46.56	53.6
8.2	60.25	32.3	8.4	58.92	55.4	8.6	38.40	3.3	8.9	22.44	42.3	8.9	47.06	53.3
9.2	59.15	32.2	9.4	58.70	55.7	9.6	39.02	3.5	9.9	22.74	42.1	9.9	47.65	52.9
10.2	58.09	32.1	10.4	58.45	56.0	10.6	39.61	3.7	10.9	23.03	41.8	10.9	48.31	52.6
11.2	57.07	31.9	11.4	58.18	56.3	11.6	40.16	4.0	11.9	23.34	41.6	11.9	49.02	52.3
12.2	56.11	31.7	12.4	57.89	56.6	12.6	40.65	4.3	12.9	23.65	41.4	12.9	49.77	52.0
13.2	55.22	31.5	13.4	57.61	56.8	13.6	41.09	4.5	13.9	23.94	41.2	13.9	50.51	51.7
14.2	54.38	31.3	14.4	57.33	57.1	14.6	41.50	4.8	14.9	24.24	41.0	14.9	51.22	51.5
15.2	53.58	31.2	15.4	57.07	57.3	15.6	41.90	5.0	15.8	24.51	40.8	15.9	51.89	51.3
16.2	52.82	31.0	16.4	56.82	57.5	16.6	42.30	5.2	16.8	24.77	40.7	16.9	52.51	51.0
17.2	52.04	30.9	17.4	56.59	57.7	17.6	42.72	5.5	17.8	25.03	40.5	17.9	53.10	50.8
18.2	51.23	30.7	18.4	56.36	58.0	18.6	43.18	5.7	18.8	25.29	40.3	18.9	53.69	50.5
19.1	50.38	30.6	19.4	56.12	58.2	19.6	43.65	5.9	19.8	25.57	40.1	19.9	54.30	50.2
20.1	49.48	30.4	20.4	55.88	58.5	20.6	44.14	6.2	20.8	25.85	39.9	20.9	54.97	50.0
21.1	48.55	30.3	21.4	55.61	58.8	21.6	44.64	6.4	21.8	26.17	39.6	21.9	55.71	49.7
22.1	47.60	30.1	22.4	55.31	59.0	22.6	45.13	6.7	22.8	26.51	39.4	22.9	56.54	49.4
23.1	46.64	29.9	23.4	54.97	59.3	23.6	45.59	7.0	23.8	26.86	39.2	23.9	57.45	49.1
24.1	45.72	29.6	24.4	54.61	59.6	24.6	46.01	7.3	24.8	27.24	39.0	24.9	58.43	48.8
25.1	44.87	29.4	25.4	54.23	59.8	25.6	46.38	7.6	25.8	27.61	38.9	25.9	59.46	48.6
26.1	44.09	29.1	26.4	53.85	60.0	26.6	46.70	7.9	26.8	27.98	38.8	26.9	60.49	48.4
27.1	43.38	28.9	27.4	53.46	60.2	27.6	46.99	8.2	27.8	28.35	38.6	27.9	61.52	48.2
28.1	42.71	28.6	28.4	53.09	60.3	28.6	47.24	8.5	28.8	28.69	38.5	28.9	62.50	48.0
29.1	42.10	28.4	29.3	52.72	60.5	29.6	47.48	8.8	29.8	29.03	38.4	29.9	63.45	47.8
30.1	41.52	28.1	30.3	52.38	60.6	30.6	47.73	9.0	30.8	29.35	38.3	30.9	64.34	47.6

(CONSTANTS OF PARIS CONFERENCE.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Mar.	1 24	+88 48	Mar.	6 56	+87 12	Mar.	12 14	+88 13	Mar.	18 2	+86 36	Mar.	19 15	+88 59
	s	″		s	″		s	″		s	″		s	″
1.1	42.10	28.4	1.3	52.72	0.5	1.6	47.48	8.8	1.8	29.03	38.4	1.9	3.45	47.8
2.1	41.52	28.1	2.3	52.38	0.6	2.6	47.73	9.0	2.8	29.35	38.3	2.9	4.34	47.6
3.1	40.90	27.9	3.3	52.06	0.8	3.6	48.00	9.3	3.8	29.66	38.2	3.9	5.20	47.4
4.1	40.26	27.7	4.3	51.74	1.0	4.6	48.29	9.6	4.8	29.98	38.1	4.9	6.04	47.2
5.1	39.59	27.5	5.3	51.42	1.1	5.6	48.60	9.8	5.8	30.30	38.0	5.9	6.91	47.0
6.1	38.88	27.2	6.3	51.08	1.3	6.6	48.93	10.1	6.8	30.64	37.8	6.8	7.83	46.8
7.1	38.14	27.0	7.3	50.73	1.5	7.6	49.25	10.4	7.8	30.99	37.7	7.8	8.82	46.6
8.1	37.39	26.7	8.3	50.36	1.7	8.6	49.56	10.7	8.8	31.37	37.6	8.8	9.86	46.4
9.1	36.67	26.5	9.3	49.95	1.9	9.5	49.84	11.1	9.8	31.77	37.5	9.8	10.98	46.2
10.1	36.01	26.2	10.3	49.52	2.1	10.5	50.07	11.4	10.8	32.17	37.4	10.8	12.14	46.0
11.1	35.40	25.9	11.3	49.09	2.3	11.5	50.24	11.8	11.8	32.56	37.3	11.8	13.33	45.8
12.1	34.87	25.6	12.3	48.66	2.4	12.5	50.36	12.1	12.8	32.94	37.3	12.8	14.52	45.7
13.1	34.41	25.3	13.3	48.23	2.5	13.5	50.45	12.5	13.8	33.30	37.3	13.8	15.68	45.5
14.1	34.01	25.0	14.3	47.82	2.6	14.5	50.52	12.8	14.8	33.65	37.3	14.8	16.80	45.4
15.1	33.65	24.7	15.3	47.44	2.6	15.5	50.58	13.1	15.8	33.99	37.3	15.8	17.86	45.3
16.1	33.29	24.4	16.3	47.06	2.7	16.5	50.65	13.4	16.8	34.32	37.2	16.8	18.87	45.2
17.1	32.92	24.2	17.3	46.69	2.8	17.5	50.74	13.6	17.8	34.65	37.2	17.8	19.85	45.1
18.1	32.52	23.9	18.3	46.34	2.9	18.5	50.86	13.9	18.8	34.97	37.2	18.8	20.83	45.0
19.1	32.08	23.7	19.3	45.97	3.0	19.5	51.00	14.2	19.8	35.31	37.1	19.8	21.84	44.9
20.1	31.59	23.4	20.3	45.59	3.1	20.5	51.15	14.5	20.8	35.67	37.1	20.8	22.90	44.7
21.1	31.09	23.1	21.3	45.19	3.3	21.5	51.29	14.9	21.8	36.05	37.0	21.8	24.03	44.6
22.1	30.59	22.8	22.3	44.75	3.4	22.5	51.41	15.2	22.8	36.44	37.0	22.8	25.24	44.4
23.1	30.12	22.5	23.3	44.30	3.5	23.5	51.50	15.5	23.7	36.86	37.0	23.8	26.52	44.3
24.1	29.71	22.2	24.3	43.84	3.6	24.5	51.54	15.9	24.7	37.26	37.0	24.8	27.84	44.2
25.1	29.37	21.8	25.3	43.36	3.6	25.5	51.52	16.2	25.7	37.67	37.0	25.8	29.18	44.1
26.0	29.10	21.5	26.3	42.87	3.7	26.5	51.46	16.6	26.7	38.05	37.1	26.8	30.50	44.1
27.0	28.91	21.2	27.3	42.41	3.7	27.5	51.36	16.9	27.7	38.43	37.2	27.8	31.79	44.0
28.0	28.78	20.8	28.3	41.97	3.7	28.5	51.24	17.2	28.7	38.79	37.2	28.8	33.02	44.0
29.0	28.67	20.5	29.3	41.54	3.7	29.5	51.12	17.5	29.7	39.12	37.3	29.8	34.18	44.0
30.0	28.56	20.2	30.3	41.14	3.7	30.5	51.02	17.8	30.7	39.46	37.4	30.8	35.29	43.9
31.0	28.42	19.9	31.3	40.74	3.7	31.5	50.93	18.1	31.7	39.78	37.4	31.8	36.37	43.9
32.0	28.26	19.7	32.3	40.36	3.7	32.5	50.87	18.4	32.7	40.11	37.5	32.8	37.44	43.9

(CONSTANTS OF PARIS CONFERENCE.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Apr.	1 24	+88 48	Apr.	6 56	+87 12	Apr.	12 14	+88 13	Apr.	18 2	+86 36	Apr.	19 15	+88 59
	s	″		s	″		s	″		s	″		s	″
1.0	28.26	19.7	1.3	40.36	3.7	1.5	50.87	18.4	1.7	40.11	37.5	1.8	37.44	43.9
2.0	28.06	19.4	2.3	39.98	3.8	2.5	50.84	18.6	2.7	40.44	37.5	2.8	38.53	43.8
3.0	27.84	19.1	3.3	39.57	3.8	3.5	50.82	18.9	3.7	40.79	37.5	3.8	39.67	43.8
4.0	27.61	18.8	4.3	39.16	3.8	4.5	50.77	19.3	4.7	41.15	37.6	4.8	40.88	43.7
5.0	27.39	18.5	5.3	38.73	3.9	5.5	50.70	19.6	5.7	41.53	37.6	5.8	42.15	43.7
6.0	27.22	18.2	6.3	38.27	3.9	6.5	50.59	19.9	6.7	41.90	37.7	6.8	43.46	43.6
7.0	27.12	17.8	7.2	37.79	3.9	7.5	50.42	20.3	7.7	42.28	37.8	7.8	44.78	43.6
8.0	27.08	17.5	8.2	37.33	3.8	8.5	50.21	20.6	8.7	42.65	38.0	8.8	46.09	43.6
9.0	27.11	17.1	9.2	36.88	3.8	9.5	49.96	20.9	9.7	43.01	38.1	9.8	47.38	43.7
10.0	27.21	16.8	10.2	36.45	3.7	10.5	49.67	21.3	10.7	43.34	38.3	10.8	48.61	43.7
11.0	27.36	16.5	11.2	36.02	3.6	11.5	49.38	21.6	11.7	43.64	38.4	11.7	49.78	43.8
12.0	27.54	16.2	12.2	35.63	3.6	12.5	49.09	21.8	12.7	43.94	38.6	12.7	50.88	43.9
13.0	27.71	15.9	13.2	35.27	3.5	13.5	48.82	22.1	13.7	44.22	38.7	13.7	51.93	43.9
13.9	27.85	15.6	14.2	34.91	3.4	14.5	48.57	22.4	14.7	44.50	38.9	14.7	52.95	44.0
14.9	27.96	15.3	15.2	34.56	3.4	15.4	48.35	22.6	15.7	44.78	39.0	15.7	54.00	44.0
15.9	28.03	15.1	16.2	34.18	3.3	16.4	48.15	22.9	16.7	45.08	39.1	16.7	55.07	44.0
16.9	28.07	14.8	17.2	33.81	3.3	17.4	47.95	23.2	17.7	45.39	39.2	17.7	56.19	44.1
17.9	28.10	14.5	18.2	33.42	3.2	18.4	47.74	23.5	18.7	45.72	39.3	18.7	57.37	44.1
18.9	28.16	14.2	19.2	32.99	3.2	19.4	47.51	23.8	19.7	46.06	39.5	19.7	58.61	44.1
19.9	28.26	13.8	20.2	32.55	3.1	20.4	47.22	24.1	20.7	46.41	39.6	20.7	59.89	44.2
20.9	28.42	13.5	21.2	32.10	3.0	21.4	46.87	24.4	21.7	46.75	39.8	21.7	61.18	44.2
21.9	28.66	13.1	22.2	31.66	2.9	22.4	46.49	24.7	22.7	47.08	40.0	22.7	62.46	44.3
22.9	28.97	12.8	23.2	31.22	2.7	23.4	46.07	24.9	23.7	47.39	40.2	23.7	63.71	44.5
23.9	29.33	12.5	24.2	30.81	2.6	24.4	45.63	25.2	24.7	47.68	40.5	24.7	64.89	44.6
24.9	29.74	12.2	25.2	30.42	2.4	25.4	45.18	25.4	25.7	47.95	40.7	25.7	66.01	44.8
25.9	30.17	11.9	26.2	30.07	2.3	26.4	44.74	25.7	26.7	48.18	40.9	26.7	67.05	44.9
26.9	30.57	11.6	27.2	29.73	2.1	27.4	44.32	25.9	27.7	48.42	41.1	27.7	68.03	45.0
27.9	30.96	11.4	28.2	29.40	2.0	28.4	43.94	26.1	28.7	48.66	41.3	28.7	68.98	45.2
28.9	31.30	11.1	29.2	29.09	1.8	29.4	43.58	26.3	29.6	48.90	41.5	29.7	69.94	45.3
29.9	31.61	10.9	30.2	28.76	1.7	30.4	43.23	26.5	30.6	49.15	41.7	30.7	70.92	45.4
30.9	31.90	10.6	31.2	28.42	1.6	31.4	42.88	26.7	31.6	49.41	41.9	31.7	71.94	45.5
31.9	32.19	10.3	32.2	28.06	1.5	32.4	42.52	27.0	32.6	49.68	42.1	32.7	73.01	45.6

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
May	1 24	+88 48	May	6 56	+87 11	May	12 14	+88 13	May	18 2	+86 36	May	19 16	+88 59
	s	″		s	″		s	″		s	″		s	″
1.9	32.19	10.3	1.2	28.42	61.6	1.4	42.88	26.7	1.6	49.41	41.9	1.7	11.94	45.5
2.9	32.51	10.0	2.2	28.06	61.5	2.4	42.52	27.0	2.6	49.68	42.1	2.7	13.01	45.6
3.9	32.88	9.7	3.2	27.71	61.4	3.4	42.12	27.2	3.6	49.95	42.3	3.7	14.12	45.7
4.9	33.32	9.4	4.2	27.32	61.2	4.4	41.68	27.5	4.6	50.22	42.5	4.7	15.25	45.8
5.9	33.82	9.2	5.2	26.94	61.0	5.4	41.20	27.7	5.6	50.49	42.7	5.7	16.37	46.0
6.9	34.41	8.9	6.2	26.57	60.8	6.4	40.67	28.0	6.6	50.74	43.0	6.7	17.46	46.2
7.9	35.06	8.6	7.2	26.23	60.6	7.4	40.11	28.2	7.6	50.96	43.3	7.7	18.50	46.4
8.9	35.72	8.3	8.2	25.90	60.4	8.4	39.54	28.4	8.6	51.17	43.6	8.7	19.47	46.6
9.9	36.39	8.1	9.2	25.60	60.2	9.4	38.96	28.6	9.6	51.35	43.9	9.7	20.36	46.8
10.9	37.04	7.9	10.2	25.32	60.0	10.4	38.41	28.8	10.6	51.51	44.2	10.7	21.18	47.0
11.9	37.65	7.7	11.2	25.07	59.8	11.4	37.88	28.9	11.6	51.67	44.4	11.7	21.95	47.2
12.9	38.21	7.5	12.2	24.85	59.6	12.4	37.39	29.1	12.6	51.82	44.7	12.7	22.71	47.4
13.9	38.74	7.3	13.1	24.60	59.4	13.4	36.92	29.2	13.6	51.99	44.9	13.7	23.48	47.6
14.9	39.25	7.1	14.1	24.35	59.2	14.4	36.46	29.4	14.6	52.16	45.1	14.7	24.28	47.7
15.9	39.75	6.8	15.1	24.10	59.0	15.4	36.00	29.5	15.6	52.35	45.3	15.7	25.12	47.9
16.9	40.29	6.6	16.1	23.82	58.8	16.4	35.52	29.7	16.6	52.55	45.6	16.7	26.04	48.1
17.9	40.87	6.3	17.1	23.51	58.6	17.4	35.01	29.9	17.6	52.76	45.8	17.7	26.99	48.3
18.9	41.52	6.1	18.1	23.21	58.4	18.4	34.45	30.1	18.6	52.96	46.1	18.7	27.95	48.5
19.9	42.25	5.8	19.1	22.90	58.2	19.4	33.85	30.3	19.6	53.15	46.4	19.6	28.91	48.7
20.9	43.04	5.6	20.1	22.61	57.9	20.4	33.22	30.5	20.6	53.33	46.7	20.6	29.83	48.9
21.9	43.87	5.4	21.1	22.34	57.7	21.3	32.56	30.6	21.6	53.49	47.1	21.6	30.68	49.2
22.9	44.72	5.2	22.1	22.09	57.4	22.3	31.90	30.7	22.6	53.61	47.4	22.6	31.45	49.5
23.9	45.56	5.0	23.1	21.87	57.1	23.3	31.24	30.8	23.6	53.72	47.7	23.6	32.14	49.7
24.9	46.38	4.8	24.1	21.67	56.8	24.3	30.61	30.9	24.6	53.81	48.0	24.6	32.76	50.0
25.9	47.16	4.7	25.1	21.50	56.6	25.3	30.01	31.0	25.6	53.89	48.3	25.6	33.33	50.3
26.9	47.88	4.5	26.1	21.34	56.3	26.3	29.44	31.0	26.6	53.97	48.6	26.6	33.89	50.5
27.9	48.57	4.4	27.1	21.18	56.1	27.3	28.90	31.1	27.6	54.06	48.9	27.6	34.46	50.7
28.9	49.24	4.2	28.1	21.00	55.9	28.3	28.37	31.2	28.6	54.16	49.1	28.6	35.07	51.0
29.9	49.94	4.0	29.1	20.82	55.7	29.3	27.83	31.3	29.6	54.27	49.4	29.6	35.71	51.2
30.9	50.67	3.9	30.1	20.63	55.4	30.3	27.28	31.4	30.6	54.39	49.7	30.6	36.39	51.4
31.9	51.46	3.7	31.1	20.42	55.2	31.3	26.70	31.6	31.6	54.51	50.0	31.6	37.08	51.7
32.9	52.31	3.5	32.1	20.21	54.9	32.3	26.06	31.7	32.6	54.61	50.3	32.6	37.78	51.9

(CONSTANTS OF PARIS CONFERENCE.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*a* Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	*δ* Ursæ Min.		Mean Solar Date.	*λ* Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
June	1 24	+88 48	June	6 56	+87 11	June	12 14	+88 13	June	18 2	+86 36	June	19 16	+88 59
	s	″		s	″		s	″		s	″		s	″
1.9	52.31	3.5	1.1	20.21	54.9	1.3	26.06	31.7	1.6	54.61	50.3	1.6	37.78	51.9
2.9	53.23	3.3	2.1	20.02	54.6	2.3	25.39	31.8	2.6	54.71	50.6	2.6	38.44	52.2
3.9	54.18	3.1	3.1	19.84	54.3	3.3	24.68	31.9	3.6	54.78	51.0	3.6	39.06	52.5
4.9	55.19	3.0	4.1	19.68	54.0	4.3	23.95	31.9	4.6	54.83	51.3	4.6	39.61	52.8
5.9	56.21	2.9	5.1	19.56	53.7	5.3	23.23	32.0	5.5	54.86	51.7	5.6	40.06	53.1
6.9	57.19	2.8	6.1	19.48	53.4	6.3	22.53	32.0	6.5	54.86	52.0	6.6	40.43	53.5
7.8	58.15	2.7	7.1	19.40	53.1	7.3	21.86	32.0	7.5	54.84	52.3	7.6	40.75	53.8
8.8	59.05	2.6	8.1	19.34	52.8	8.3	21.22	32.0	8.5	54.83	52.6	8.6	41.03	54.1
9.8	59.91	2.5	9.1	19.30	52.5	9.3	20.62	32.0	9.5	54.81	52.9	9.6	41.31	54.3
10.8	60.73	2.4	10.1	19.25	52.2	10.3	20.05	32.0	10.5	54.80	53.2	10.6	41.60	54.6
11.8	61.53	2.3	11.1	19.18	52.0	11.3	19.48	32.1	11.5	54.81	53.5	11.6	41.92	54.9
12.8	62.35	2.2	12.1	19.10	51.7	12.3	18.90	32.1	12.5	54.84	53.8	12.6	42.30	55.1
13.8	63.22	2.1	13.1	18.99	51.5	13.3	18.31	32.1	13.5	54.86	54.1	13.6	42.74	55.4
14.8	64.13	2.0	14.1	18.88	51.2	14.3	17.69	32.2	14.5	54.90	54.4	14.6	43.20	55.7
15.8	65.10	1.9	15.1	18.77	50.9	15.3	17.02	32.2	15.5	54.92	54.7	15.6	43.64	56.0
16.8	66.14	1.8	16.1	18.66	50.6	16.3	16.32	32.2	16.5	54.94	55.0	16.6	44.05	56.3
17.8	67.22	1.7	17.1	18.58	50.2	17.3	15.57	32.2	17.5	54.93	55.4	17.6	44.40	56.6
18.8	68.31	1.6	18.0	18.52	49.9	18.3	14.83	32.2	18.5	54.89	55.7	18.6	44.69	57.0
19.8	69.40	1.5	19.0	18.50	49.6	19.3	14.09	32.1	19.5	54.83	56.1	19.6	44.88	57.3
20.8	70.47	1.5	20.0	18.50	49.2	20.3	13.38	32.1	20.5	54.75	56.4	20.6	44.99	57.7
21.8	71.48	1.5	21.0	18.52	48.9	21.3	12.70	32.0	21.5	54.65	56.7	21.6	45.03	58.0
22.8	72.44	1.5	22.0	18.55	48.6	22.3	12.06	31.9	22.5	54.56	57.0	22.6	45.05	58.3
23.8	73.35	1.5	23.0	18.60	48.3	23.3	11.47	31.8	23.5	54.47	57.3	23.5	45.07	58.6
24.8	74.24	1.5	24.0	18.63	48.0	24.3	10.90	31.7	24.5	54.38	57.6	24.5	45.10	58.9
25.8	75.12	1.5	25.0	18.65	47.8	25.3	10.33	31.7	25.5	54.31	57.8	25.5	45.17	59.1
26.8	76.02	1.4	26.0	18.66	47.5	26.3	9.75	31.6	26.5	54.25	58.1	26.5	45.27	59.4
27.8	76.96	1.4	27.0	18.67	47.2	27.2	9.15	31.6	27.5	54.19	58.4	27.5	45.41	59.7
28.8	77.97	1.3	28.0	18.66	46.9	28.2	8.52	31.5	28.5	54.12	58.7	28.5	45.55	60.0
29.8	79.03	1.3	29.0	18.66	46.6	29.2	7.84	31.5	29.5	54.04	59.0	29.5	45.67	60.3
30.8	80.14	1.3	30.0	18.69	46.3	30.2	7.14	31.5	30.5	53.94	59.4	30.5	45.74	60.7
31.8	81.29	1.3	31.0	18.73	46.0	31.2	6.42	31.4	31.5	53.84	59.7	31.5	45.74	61.0

(CONSTANTS OF PARIS CONFERENCE.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
July	1 25	+88 48	July	6 56	+87 11	July	12 13	+88 13	July	18 2	+86 36	July	19 16	+89 0
	s	″		s	″		s	″		s	″		s	″
1.8	21.29	1.3	1.0	18.73	46.0	1.2	66.42	31.4	1.5	53.84	59.7	1.5	45.74	1.0
2.8	22.45	1.3	2.0	18.80	45.6	2.2	65.70	31.3	2.5	53.70	60.1	2.5	45.66	1.4
3.8	23.59	1.3	3.0	18.90	45.3	3.2	64.99	31.2	3.5	53.53	60.4	3.5	45.49	1.7
4.8	24.70	1.4	4.0	19.02	44.9	4.2	64.31	31.0	4.5	53.34	60.7	4.5	45.25	2.1
5.8	25.75	1.5	5.0	19.16	44.6	5.2	63.68	30.9	5.5	53.15	61.0	5.5	44.96	2.4
6.8	26.74	1.5	6.0	19.32	44.3	6.2	63.08	30.7	6.5	52.96	61.3	6.5	44.66	2.7
7.8	27.69	1.6	6.9	19.48	44.0	7.2	62.51	30.6	7.5	52.78	61.6	7.5	44.38	3.0
8.8	28.60	1.6	7.9	19.62	43.7	8.2	61.97	30.5	8.5	52.62	61.8	8.5	44.13	3.3
9.8	29.50	1.7	8.9	19.76	43.5	9.2	61.43	30.3	9.5	52.47	62.1	9.5	43.92	3.6
10.8	30.44	1.7	9.9	19.87	43.2	10.2	60.89	30.2	10.5	52.33	62.3	10.5	43.75	3.9
11.8	31.41	1.7	10.9	19.97	42.9	11.2	60.33	30.1	11.5	52.19	62.6	11.5	43.61	4.2
12.8	32.43	1.8	11.9	20.06	42.6	12.2	59.71	30.0	12.4	52.06	62.9	12.5	43.48	4.5
13.8	33.51	1.8	12.9	20.15	42.3	13.2	59.07	29.8	13.4	51.91	63.2	13.5	43.33	4.8
14.8	34.63	1.9	13.9	20.27	42.0	14.2	58.40	29.7	14.4	51.74	63.5	14.5	43.14	5.2
15.7	35.78	1.9	14.9	20.41	41.6	15.2	57.72	29.5	15.4	51.53	63.8	15.5	42.88	5.5
16.7	36.93	2.0	15.9	20.56	41.3	16.2	57.05	29.3	16.4	51.31	64.1	16.5	42.53	5.9
17.7	38.03	2.1	16.9	20.75	41.0	17.2	56.41	29.1	17.4	51.08	64.4	17.5	42.10	6.3
18.7	39.10	2.2	17.9	20.98	40.6	18.2	55.80	28.9	18.4	50.82	64.7	18.5	41.60	6.6
19.7	40.12	2.4	18.9	21.23	40.3	19.2	55.22	28.7	19.4	50.57	65.0	19.5	41.05	6.9
20.7	41.07	2.5	19.9	21.47	40.0	20.2	54.70	28.5	20.4	50.32	65.2	20.5	40.50	7.2
21.7	41.98	2.7	20.9	21.72	39.8	21.2	54.21	28.2	21.4	50.07	65.4	21.5	39.96	7.5
22.7	42.86	2.8	21.9	21.96	39.5	22.2	53.73	28.0	22.4	49.83	65.7	22.5	39.45	7.8
23.7	43.76	2.9	22.9	22.18	39.3	23.2	53.25	27.8	23.4	49.60	65.9	23.5	38.97	8.0
24.7	44.67	3.0	23.9	22.38	39.0	24.2	52.75	27.6	24.4	49.39	66.1	24.5	38.53	8.3
25.7	45.63	3.1	24.9	22.59	38.8	25.2	52.23	27.5	25.4	49.17	66.4	25.5	38.10	8.6
26.7	46.65	3.2	25.9	22.79	38.5	26.2	51.68	27.3	26.4	48.94	66.6	26.5	37.67	8.9
27.7	47.71	3.3	26.9	23.01	38.2	27.2	51.10	27.1	27.4	48.70	66.9	27.5	37.19	9.2
28.7	48.82	3.4	27.9	23.23	37.9	28.2	50.49	26.9	28.4	48.43	67.2	28.5	36.66	9.6
29.7	49.94	3.6	28.9	23.48	37.6	29.2	49.88	26.7	29.4	48.14	67.4	29.5	36.06	9.9
30.7	51.04	3.8	29.9	23.77	37.2	30.2	49.29	26.4	30.4	47.84	67.7	30.5	35.39	10.2
31.7	52.10	4.0	30.9	24.07	36.9	31.2	48.72	26.1	31.4	47.52	68.0	31.4	34.62	10.6
32.7	53.12	4.2	31.9	24.39	36.6	32.1	48.20	25.9	32.4	47.18	68.2	32.4	33.79	10.9

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Aug.	1 25	+88 48	Aug.	6 56	+87 11	Aug.	12 13	+88 13	Aug.	18 2	+86 37	Aug.	19 16	+89 0
	s	″		s	″		s	″		s	″		s	″
1.7	53.12	4.2	1.9	24.74	36.4	1.1	48.20	25.9	1.4	47.18	8.2	1.4	33.79	10.9
2.7	54.07	4.4	2.9	25.09	36.1	2.1	47.73	25.6	2.4	46.85	8.4	2.4	32.94	11.2
3.7	54.96	4.6	3.9	25.42	35.9	3.1	47.29	25.3	3.4	46.52	8.6	3.4	32.10	11.5
4.7	55.80	4.8	4.9	25.75	35.6	4.1	46.88	25.0	4.4	46.21	8.8	4.4	31.28	11.7
5.7	56.62	5.0	5.9	26.06	35.4	5.1	46.48	24.8	5.4	45.91	9.0	5.4	30.49	12.0
6.7	57.45	5.2	6.9	26.35	35.2	6.1	46.09	24.5	6.4	45.63	9.1	6.4	29.76	12.2
7.7	58.31	5.4	7.9	26.62	35.0	7.1	45.69	24.3	7.4	45.36	9.3	7.4	29.09	12.5
8.7	59.20	5.5	8.9	26.90	34.7	8.1	45.24	24.1	8.4	45.08	9.6	8.4	28.43	12.7
9.7	60.15	5.7	9.9	27.18	34.4	9.1	44.77	23.8	9.4	44.80	9.8	9.4	27.75	13.0
10.7	61.13	5.9	10.9	27.49	34.1	10.1	44.28	23.6	10.4	44.50	10.0	10.4	27.06	13.3
11.7	62.16	6.1	11.9	27.81	33.8	11.1	43.76	23.3	11.4	44.19	10.2	11.4	26.30	13.6
12.7	63.18	6.3	12.9	28.16	33.6	12.1	43.25	23.0	12.4	43.85	10.5	12.4	25.47	13.9
13.7	64.17	6.5	13.9	28.55	33.3	13.1	42.76	22.7	13.4	43.49	10.7	13.4	24.55	14.2
14.7	65.12	6.8	14.9	28.95	33.0	14.1	42.30	22.3	14.4	43.12	10.9	14.4	23.56	14.5
15.7	66.01	7.1	15.9	29.36	32.8	15.1	41.89	22.0	15.4	42.74	11.1	15.4	22.53	14.8
16.7	66.84	7.3	16.9	29.77	32.6	16.1	41.54	21.6	16.4	42.35	11.2	16.4	21.47	15.1
17.7	67.60	7.6	17.9	30.18	32.4	17.1	41.22	21.3	17.3	41.99	11.4	17.4	20.41	15.3
18.7	68.33	7.8	18.9	30.56	32.2	18.1	40.92	21.0	18.3	41.62	11.5	18.4	19.38	15.5
19.6	69.04	8.1	19.9	30.93	32.0	19.1	40.63	20.7	19.3	41.27	11.6	19.4	18.41	15.7
20.6	69.78	8.3	20.9	31.30	31.8	20.1	40.34	20.4	20.3	40.94	11.7	20.4	17.47	16.0
21.6	70.55	8.6	21.9	31.66	31.6	21.1	40.03	20.1	21.3	40.61	11.9	21.4	16.55	16.2
22.6	71.36	8.8	22.9	32.02	31.4	22.1	39.69	19.8	22.3	40.28	12.0	22.4	15.64	16.4
23.6	72.22	9.0	23.9	32.40	31.2	23.1	39.32	19.5	23.3	39.94	12.2	23.4	14.72	16.7
24.6	73.12	9.3	24.9	32.80	30.9	24.1	38.93	19.2	24.3	39.58	12.4	24.4	13.75	16.9
25.6	74.03	9.5	25.9	33.21	30.7	25.1	38.52	18.9	25.3	39.19	12.5	25.4	12.71	17.2
26.6	74.94	9.8	26.9	33.66	30.5	26.1	38.13	18.6	26.3	38.78	12.7	26.4	11.59	17.5
27.6	75.82	10.2	27.9	34.14	30.2	27.1	37.76	18.2	27.3	38.36	12.9	27.4	10.40	17.7
28.6	76.64	10.5	28.9	34.62	30.0	28.1	37.43	17.8	28.3	37.93	13.0	28.4	9.14	18.0
29.6	77.42	10.8	29.9	35.11	29.8	29.1	37.15	17.5	29.3	37.49	13.1	29.4	7.85	18.2
30.6	78.10	11.1	30.8	35.59	29.7	30.1	36.92	17.1	30.3	37.07	13.2	30.4	6.55	18.4
31.6	78.73	11.4	31.8	36.05	29.5	31.1	36.73	16.7	31.3	36.65	13.3	31.4	5.28	18.6
32.6	79.31	11.7	32.8	36.51	29.4	32.1	36.56	16.4	32.3	36.25	13.3	32.4	4.06	18.8

(CONSTANTS OF PARIS CONFERENCE.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Sept.	1 26	+88 48	Sept.	6 56	+87 11	Sept.	12 13	+88 13	Sept.	18 2	+86 37	Sept.	19 15	+89 0
	s	″		s	″		s	″		s	″		s	″
1.6	19.31	11.7	1.8	36.51	29.4	1.1	36.56	16.4	1.3	36.25	13.3	1.4	64.06	18.8
2.6	19.89	12.0	2.8	36.94	29.3	2.1	36.40	16.0	2.3	35.87	13.4	2.4	62.87	18.9
3.6	20.49	12.3	3.8	37.35	29.1	3.1	36.24	15.7	3.3	35.50	13.5	3.4	61.75	19.1
4.6	21.12	12.6	4.8	37.76	29.0	4.1	36.05	15.4	4.3	35.14	13.6	4.4	60.67	19.3
5.6	21.79	12.9	5.8	38.17	28.8	5.1	35.82	15.1	5.3	34.78	13.7	5.3	59.60	19.5
6.6	22.51	13.1	6.8	38.59	28.6	6.0	35.56	14.7	6.3	34.40	13.8	6.3	58.51	19.7
7.6	23.25	13.4	7.8	39.03	28.4	7.0	35.29	14.4	7.3	34.02	13.9	7.3	57.38	19.9
8.6	24.01	13.7	8.8	39.50	28.2	8.0	35.03	14.0	8.3	33.61	14.0	8.3	56.19	20.1
9.6	24.74	14.1	9.8	40.00	28.0	9.0	34.78	13.6	9.3	33.19	14.1	9.3	54.94	20.3
10.6	25.42	14.4	10.8	40.51	27.9	10.0	34.55	13.2	10.3	32.75	14.2	10.3	53.59	20.5
11.6	26.06	14.8	11.8	41.03	27.7	11.0	34.36	12.8	11.3	32.29	14.3	11.3	52.19	20.7
12.6	26.62	15.1	12.8	41.55	27.6	12.0	34.23	12.4	12.3	31.84	14.3	12.3	50.77	20.9
13.6	27.12	15.5	13.8	42.07	27.5	13.0	34.15	12.0	13.3	31.39	14.3	13.3	49.36	21.1
14.6	27.57	15.9	14.8	42.58	27.4	14.0	34.10	11.6	14.3	30.97	14.3	14.3	47.96	21.2
15.6	27.99	16.2	15.8	43.07	27.3	15.0	34.06	11.2	15.3	30.56	14.3	15.3	46.60	21.3
16.6	28.40	16.5	16.8	43.54	27.2	16.0	34.03	10.9	16.3	30.16	14.3	16.3	45.32	21.4
17.6	28.84	16.8	17.8	44.00	27.1	17.0	33.98	10.5	17.3	29.76	14.3	17.3	44.07	21.5
18.6	29.32	17.2	18.8	44.45	27.0	18.0	33.91	10.2	18.3	29.38	14.4	18.3	42.84	21.7
19.6	29.84	17.5	19.8	44.91	26.9	19.0	33.81	9.8	19.3	28.99	14.4	19.3	41.60	21.8
20.6	30.40	17.8	20.8	45.38	26.8	20.0	33.68	9.5	20.3	28.59	14.4	20.3	40.33	21.9
21.6	31.00	18.1	21.8	45.89	26.6	21.0	33.54	9.1	21.3	28.16	14.5	21.3	39.02	22.1
22.6	31.58	18.5	22.8	46.42	26.5	22.0	33.42	8.8	22.3	27.72	14.5	22.3	37.63	22.3
23.6	32.14	18.9	23.8	46.96	26.4	23.0	33.31	8.4	23.2	27.26	14.6	23.3	36.18	22.4
24.6	32.65	19.3	24.8	47.52	26.3	24.0	33.24	8.0	24.2	26.79	14.6	24.3	34.66	22.6
25.5	33.10	19.7	25.8	48.11	26.2	25.0	33.20	7.5	25.2	26.32	14.6	25.3	33.09	22.7
26.5	33.47	20.1	26.8	48.68	26.2	25.9	33.22	7.1	26.2	25.84	14.5	26.3	31.52	22.8
27.5	33.78	20.5	27.8	49.23	26.1	26.9	33.28	6.7	27.2	25.38	14.5	27.3	29.97	22.9
28.5	34.05	20.8	28.8	49.76	26.1	27.9	33.37	6.3	28.2	24.93	14.4	28.3	28.47	23.0
29.5	34.28	21.2	29.8	50.28	26.1	28.9	33.48	6.0	29.2	24.51	14.3	29.3	27.03	23.0
30.5	34.51	21.6	30.8	50.77	26.1	29.9	33.59	5.6	30.2	24.11	14.3	30.3	25.65	23.1
31.5	34.76	21.9	31.8	51.25	26.0	30.9	33.69	5.2	31.2	23.73	14.2	31.3	24.32	23.1
32.5	35.05	22.2	32.8	51.71	26.0	31.9	33.75	4.9	32.2	23.34	14.2	32.3	23.01	23.2

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Oct.	1 26	+88 48	Oct.	6 56	+87 11	Oct.	12 13	+88 12	Oct.	18 2	+86 37	Oct.	19 14	+89 0
	s	″		s	″		s	″		s	″		s	″
1.5	34.76	21.9	1.8	51.25	26.0	1.9	33.75	64.9	1.2	23.73	14.2	1.3	84.32	23.1
2.5	35.05	22.2	2.8	51.71	26.0	2.9	33.78	64.5	2.2	23.34	14.2	2.3	83.01	23.2
3.5	35.38	22.6	3.8	52.18	25.9	3.9	33.81	64.2	3.2	22.96	14.2	3.3	81.72	23.2
4.5	35.75	22.9	4.8	52.68	25.8	4.9	33.81	63.8	4.2	22.55	14.1	4.3	80.40	23.3
5.5	36.12	23.3	5.8	53.19	25.8	5.9	33.83	63.4	5.2	22.15	14.1	5.3	79.03	23.4
6.5	36.49	23.7	6.8	53.73	25.7	6.9	33.87	63.0	6.2	21.72	14.1	6.3	77.60	23.5
7.5	36.83	24.0	7.7	54.28	25.7	7.9	33.95	62.5	7.2	21.28	14.0	7.3	76.10	23.6
8.5	37.11	24.4	8.7	54.86	25.6	8.9	34.08	62.1	8.2	20.82	14.0	8.3	74.54	23.7
9.5	37.31	24.9	9.7	55.43	25.6	9.9	34.25	61.7	9.2	20.37	13.9	9.3	72.95	23.7
10.5	37.43	25.3	10.7	55.99	25.6	10.9	34.47	61.3	10.2	19.92	13.8	10.3	71.37	23.8
11.5	37.50	25.7	11.7	56.53	25.7	11.9	34.71	60.9	11.2	19.50	13.7	11.2	69.82	23.8
12.5	37.52	26.1	12.7	57.06	25.7	12.9	34.96	60.5	12.2	19.09	13.5	12.2	68.31	23.8
13.5	37.54	26.4	13.7	57.56	25.8	13.9	35.22	60.2	13.2	18.70	13.4	13.2	66.85	23.8
14.5	37.57	26.8	14.7	58.05	25.8	14.9	35.45	59.9	14.2	18.32	13.2	14.2	65.45	23.8
15.5	37.62	27.1	15.7	58.53	25.8	15.9	35.65	59.5	15.2	17.95	13.1	15.2	64.09	23.7
16.5	37.72	27.5	16.7	59.01	25.8	16.9	35.82	59.2	16.2	17.57	13.0	16.2	62.74	23.7
17.5	37.85	27.8	17.7	59.50	25.8	17.9	35.97	58.8	17.2	17.18	12.9	17.2	61.39	23.8
18.5	38.00	28.2	18.7	60.01	25.8	18.9	36.11	58.5	18.2	16.80	12.8	18.2	60.00	23.8
19.5	38.18	28.6	19.7	60.54	25.8	19.9	36.28	58.1	19.2	16.39	12.7	19.2	58.56	23.8
20.5	38.34	29.0	20.7	61.10	25.8	20.9	36.48	57.7	20.2	15.96	12.6	20.2	57.05	23.8
21.5	38.44	29.4	21.7	61.66	25.8	21.9	36.73	57.3	21.2	15.53	12.5	21.2	55.49	23.8
22.5	38.49	29.8	22.7	62.23	25.9	22.9	37.02	56.9	22.2	15.08	12.4	22.2	53.89	23.8
23.5	38.47	30.2	23.7	62.81	26.0	23.9	37.35	56.5	23.2	14.64	12.2	23.2	52.26	23.8
24.5	38.36	30.7	24.7	63.38	26.0	24.9	37.73	56.2	24.2	14.22	12.1	24.2	50.66	23.8
25.5	38.21	31.1	25.7	63.92	26.1	25.9	38.12	55.8	25.2	13.80	11.9	25.2	49.11	23.7
26.5	38.00	31.5	26.7	64.43	26.3	26.9	38.51	55.5	26.2	13.40	11.7	26.2	47.61	23.6
27.5	37.78	31.8	27.7	64.92	26.4	27.9	38.89	55.2	27.2	13.04	11.5	27.2	46.18	23.5
28.5	37.59	32.2	28.7	65.39	26.5	28.9	39.25	54.9	28.2	12.70	11.3	28.2	44.83	23.4
29.5	37.43	32.5	29.7	65.84	26.6	29.9	39.58	54.5	29.1	12.36	11.1	29.2	43.53	23.4
30.5	37.30	32.8	30.7	66.30	26.6	30.9	39.89	54.2	30.1	12.03	10.9	30.2	42.25	23.3
31.5	37.22	33.2	31.7	66.77	26.7	31.9	40.18	53.9	31.1	11.70	10.8	31.2	40.96	23.2
32.4	37.15	33.5	32.7	67.25	26.8	32.9	40.48	53.6	32.1	11.35	10.6	32.2	39.63	23.2

(CONSTANTS OF PARIS CONFERENCE.)

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Nov.	1 26	+88 48	Nov.	6 57	+87 11	Nov.	12 13	+88 12	Nov.	18 2	+86 37	Nov.	19 14	+89 0
	s	″		s	″		s	″		s	″		s	″
1.4	37.15	33.5	1.7	7.25	26.8	1.9	40.48	53.6	1.1	11.35	10.6	1.2	39.63	23.2
2.4	37.07	33.9	2.7	7.75	26.8	2.9	40.79	53.2	2.1	10.99	10.5	2.2	38.25	23.1
3.4	36.97	34.3	3.7	8.27	26.9	3.9	41.14	52.8	3.1	10.61	10.3	3.2	36.82	23.1
4.4	36.82	34.7	4.7	8.80	27.0	4.9	41.53	52.4	4.1	10.22	10.1	4.2	35.35	23.0
5.4	36.61	35.1	5.7	9.33	27.1	5.9	41.96	52.1	5.1	9.84	9.9	5.2	33.84	22.9
6.4	36.31	35.5	6.7	9.87	27.3	6.9	42.44	51.7	6.1	9.47	9.7	6.2	32.33	22.8
7.4	35.96	35.9	7.7	10.38	27.4	7.9	42.96	51.4	7.1	9.10	9.4	7.2	30.85	22.7
8.4	35.55	36.2	8.7	10.87	27.6	8.9	43.48	51.0	8.1	8.76	9.2	8.2	29.41	22.6
9.4	35.11	36.6	9.7	11.34	27.8	9.9	44.01	50.7	9.1	8.44	8.9	9.2	28.04	22.4
10.4	34.68	36.9	10.7	11.78	27.9	10.9	44.53	50.5	10.1	8.14	8.6	10.2	26.75	22.3
11.4	34.27	37.3	11.6	12.21	28.1	11.9	45.01	50.2	11.1	7.84	8.4	11.2	25.51	22.1
12.4	33.89	37.6	12.6	12.63	28.2	12.9	45.46	49.9	12.1	7.56	8.1	12.2	24.30	22.0
13.4	33.56	37.9	13.6	13.05	28.4	13.9	45.90	49.7	13.1	7.29	7.9	13.2	23.12	21.8
14.4	33.25	38.2	14.6	13.49	28.5	14.9	46.32	49.4	14.1	7.00	7.7	14.2	21.90	21.7
15.4	32.97	38.6	15.6	13.94	28.6	15.9	46.74	49.1	15.1	6.69	7.5	15.2	20.65	21.6
16.4	32.67	38.9	16.6	14.41	28.8	16.9	47.18	48.8	16.1	6.37	7.3	16.2	19.34	21.5
17.4	32.34	39.3	17.6	14.90	28.9	17.9	47.67	48.5	17.1	6.03	7.0	17.1	17.98	21.4
18.4	31.97	39.6	18.6	15.40	29.1	18.9	48.20	48.2	18.1	5.70	6.8	18.1	16.58	21.2
19.4	31.52	40.0	19.6	15.89	29.3	19.8	48.77	47.9	19.1	5.37	6.5	19.1	15.17	21.1
20.4	30.99	40.4	20.6	16.37	29.5	20.8	49.38	47.6	20.1	5.05	6.2	20.1	13.77	20.9
21.4	30.40	40.7	21.6	16.83	29.7	21.8	50.02	47.3	21.1	4.74	5.9	21.1	12.42	20.7
22.4	29.77	41.1	22.6	17.26	30.0	22.8	50.68	47.1	22.1	4.46	5.6	22.1	11.13	20.5
23.4	29.10	41.4	23.6	17.67	30.2	23.8	51.32	46.8	23.1	4.21	5.3	23.1	9.92	20.3
24.4	28.44	41.7	24.6	18.05	30.5	24.8	51.94	46.6	24.1	3.98	5.0	24.1	8.79	20.0
25.4	27.81	42.0	25.6	18.40	30.7	25.8	52.53	46.4	25.1	3.77	4.7	25.1	7.73	19.8
26.4	27.22	42.3	26.6	18.74	30.9	26.8	53.09	46.2	26.1	3.56	4.4	26.1	6.72	19.6
27.4	26.66	42.5	27.6	19.09	31.1	27.8	53.63	46.0	27.1	3.36	4.1	27.1	5.70	19.4
28.4	26.13	42.8	28.6	19.45	31.3	28.8	54.15	45.7	28.1	3.14	3.8	28.1	4.69	19.2
29.4	25.62	43.1	29.6	19.82	31.5	29.8	54.69	45.5	29.1	2.92	3.6	29.1	3.65	19.0
30.4	25.10	43.4	30.6	20.21	31.7	30.8	55.26	45.2	30.1	2.68	3.3	30.1	2.56	18.8
31.4	24.53	43.7	31.6	20.62	31.9	31.8	55.86	45.0	31.1	2.44	3.0	31.1	1.43	18.6

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Min. (*Polaris*).		Mean Solar Date.	51 Cephei (Hev.).		Mean Solar Date.	6 Ursæ Min. (B.).		Mean Solar Date.	δ Ursæ Min.		Mean Solar Date.	λ Ursæ Min.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′		h m	° ′
Dec.	1 25	+88 48	Dec.	6 57	+87 11	Dec.	12 13	+88 12	Dec.	18 1	+86 36	Dec.	19 13	+89 0
	s	″		s	″		s	″		s	″		s	″
1.4	84.53	43.7	1.6	20.62	31.9	1.8	55.86	45.0	1.1	62.44	63.0	1.1	61.43	18.6
2.4	83.90	44.0	2.6	21.02	32.1	2.8	56.50	44.7	2.1	62.20	62.7	2.1	60.26	18.4
3.4	83.21	44.3	3.6	21.42	32.4	3.8	57.19	44.5	3.1	61.96	62.4	3.1	59.09	18.2
4.4	82.44	44.6	4.6	21.80	32.6	4.8	57.91	44.3	4.0	61.74	62.1	4.1	57.95	18.0
5.4	81.62	44.9	5.6	22.16	32.9	5.8	58.64	44.1	5.0	61.53	61.7	5.1	56.86	17.7
6.4	80.75	45.2	6.6	22.49	33.2	6.8	59.38	43.9	6.0	61.35	61.3	6.1	55.83	17.4
7.3	79.88	45.5	7.6	22.79	33.5	7.8	60.11	43.7	7.0	61.19	61.0	7.1	54.88	17.1
8.3	79.03	45.7	8.6	23.07	33.8	8.8	60.81	43.6	8.0	61.06	60.6	8.1	54.02	16.8
9.3	78.21	45.9	9.6	23.34	34.1	9.8	61.47	43.4	9.0	60.94	60.3	9.1	53.20	16.5
10.3	77.44	46.1	10.6	23.61	34.3	10.8	62.11	43.3	10.0	60.82	60.0	10.1	52.42	16.3
11.3	76.72	46.4	11.6	23.87	34.6	11.8	62.72	43.2	11.0	60.69	59.7	11.1	51.63	16.0
12.3	76.02	46.6	12.6	24.16	34.8	12.8	63.33	43.0	12.0	60.55	59.4	12.1	50.83	15.8
13.3	75.33	46.8	13.6	24.46	35.1	13.8	63.95	42.8	13.0	60.40	59.1	13.1	49.99	15.5
14.3	74.62	47.1	14.6	24.78	35.3	14.8	64.59	42.7	14.0	60.24	58.8	14.1	49.10	15.3
15.3	73.86	47.3	15.6	25.10	35.6	15.8	65.27	42.5	15.0	60.07	58.5	15.1	48.16	15.1
16.3	73.06	47.6	16.6	25.43	35.9	16.8	65.99	42.4	16.0	59.91	58.1	16.1	47.21	14.8
17.3	72.18	47.8	17.6	25.75	36.2	17.8	66.76	42.2	17.0	59.74	57.8	17.1	46.27	14.5
18.3	71.22	48.1	18.6	26.04	36.5	18.8	67.57	42.1	18.0	59.59	57.4	18.1	45.37	14.2
19.3	70.21	48.3	19.5	26.30	36.8	19.8	68.37	42.0	19.0	59.48	57.0	19.1	44.54	13.9
20.3	69.19	48.5	20.5	26.53	37.2	20.8	69.16	41.9	20.0	59.39	56.7	20.1	43.79	13.6
21.3	68.16	48.7	21.5	26.73	37.5	21.8	69.94	41.8	21.0	59.32	56.3	21.1	43.14	13.2
22.3	67.17	48.9	22.5	26.91	37.8	22.8	70.69	41.8	22.0	59.28	55.9	22.1	42.57	12.9
23.3	66.21	49.0	23.5	27.06	38.1	23.8	71.39	41.7	22.9	59.25	55.6	23.0	42.06	12.6
24.3	65.29	49.2	24.5	27.21	38.4	24.8	72.07	41.6	23.9	59.23	55.2	24.0	41.58	12.3
25.3	64.40	49.3	25.5	27.36	38.7	25.7	72.71	41.6	24.9	59.21	54.9	25.0	41.11	12.0
26.3	63.56	49.4	26.5	27.53	39.0	26.7	73.36	41.5	25.9	59.17	54.6	26.0	40.62	11.7
27.3	62.71	49.6	27.5	27.71	39.2	27.7	74.02	41.4	26.9	59.13	54.3	27.0	40.10	11.4
28.3	61.83	49.8	28.5	27.91	39.5	28.7	74.71	41.3	27.9	59.07	54.0	28.0	39.54	11.1
29.3	60.90	49.9	29.5	28.10	39.8	29.7	75.43	41.2	28.9	59.03	53.6	29.0	38.95	10.8
30.3	59.92	50.1	30.5	28.29	40.2	30.7	76.19	41.1	29.9	58.98	53.3	30.0	38.36	10.5
31.3	58.87	50.3	31.5	28.47	40.5	31.7	76.99	41.1	30.9	58.93	52.9	31.0	37.79	10.2
32.3	57.77	50.4	32.5	28.62	40.9	32.7	77.81	41.0	31.9	58.92	52.5	32.0	37.26	9.9

(CONSTANTS OF PARIS CONFERENCE.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	43 Cephei (H.).				μ Hydri.				47 Cephei (H.).				δ Mensæ.				Groombridge 944.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*	
	h m 0 55		° ' +85 44		h m 2 33		° ' −79 30		h m 2 53		° ' +79 2		h m 4 24		° ' −80 25		h m 5 31		° ' +85 8	
	s		"		s		"		s		"		s		"		s		"	
Jan. 0.4	53.11	2.90	85.8	0.5	40.40	1.13	96.4	0.9	37.92	0.83	60.6	1.8	25.16	0.98	84.4	2.4	59.06	0.44	62.0	3.2
10.3	50.21	2.92	86.3	0.2	39.27	1.20	97.3	0.2	37.09	0.95	62.4	1.3	24.18	1.15	86.8	1.8	58.62	0.93	65.2	3.0
20.3	47.29	2.82	86.1	0.8	38.07	1.23	97.5	0.3	36.14	1.03	63.7	0.7	23.03	1.28	88.6	1.4	57.69	1.39	68.2	2.6
30.3	44.47	2.62	85.3	1.4	36.84	1.21	97.2	0.9	35.11	1.08	64.4	0.1	21.75	1.39	90.0	0.8	56.30	1.79	70.8	2.2
Feb. 9.2	41.85	2.32	83.9	2.0	35.63	1.18	96.3	1.5	34.03	1.07	64.5	0.6	20.36	1.44	90.8	0.2	54.51	2.11	73.0	1.7
19.2	39.53	1.94	81.9	2.5	34.45	1.10	94.8	2.0	32.96	1.03	63.9	1.1	18.92	1.47	91.0	0.3	52.40	2.34	74.7	1.1
Mar. 1.2	37.59	1.47	79.4	2.8	33.35	1.00	92.8	2.4	31.93	0.95	62.8	1.6	17.45	1.44	90.7	0.8	50.06	2.47	75.8	0.6
11.2	36.12	0.95	76.6	3.0	32.35	0.88	90.4	2.8	30.98	0.81	61.2	2.0	16.01	1.39	89.9	1.4	47.59	2.49	76.4	0.1
21.1	35.17	0.40	73.6	3.1	31.47	0.73	87.6	3.2	30.17	0.64	59.2	2.4	14.62	1.31	88.5	1.8	45.10	2.41	76.3	0.6
31.1	34.77	0.16	70.5	3.1	30.74	0.56	84.4	3.5	29.53	0.46	56.8	2.7	13.31	1.18	86.7	2.3	42.69	2.23	75.7	1.2
Apr. 10.1	34.93	0.71	67.4	3.0	30.18	0.38	80.9	3.6	29.07	0.25	54.1	2.8	12.13	1.03	84.4	2.7	40.46	1.97	74.5	1.7
20.1	35.64	1.22	64.4	2.8	29.80	0.20	77.3	3.7	28.82	0.03	51.3	2.9	11.10	0.86	81.7	3.0	38.49	1.64	72.8	2.2
30.0	36.86	1.68	61.6	2.4	29.60	0.01	73.6	3.7	28.79	0.19	48.4	2.8	10.24	0.67	78.7	3.2	36.85	1.24	70.6	2.4
May 10.0	38.54	2.08	59.2	1.9	29.61	0.20	69.9	3.7	28.98	0.40	45.6	2.6	9.57	0.46	75.5	3.4	35.61	0.81	68.2	2.7
20.0	40.62	2.41	57.3	1.5	29.81	0.39	66.2	3.5	29.38	0.60	43.0	2.4	9.11	0.23	72.1	3.5	34.80	0.35	65.5	2.9
29.9	43.03	2.66	55.8	1.0	30.20	0.58	62.7	3.3	29.98	0.78	40.6	2.0	8.88	0.01	68.6	3.6	34.45	0.12	62.6	2.9
June 8.9	45.69	2.84	54.8	0.4	30.78	0.75	59.4	3.0	30.76	0.94	38.6	1.7	8.87	0.21	65.0	3.4	34.57	0.57	59.7	2.9
18.9	48.53	2.92	54.4	0.1	31.53	0.90	56.4	2.6	31.70	1.06	36.9	1.2	9.08	0.43	61.6	3.3	35.14	1.01	56.8	2.8
28.9	51.45	2.94	54.5	0.7	32.43	1.02	53.8	2.2	32.76	1.16	35.7	0.8	9.51	0.64	58.3	3.1	36.15	1.42	54.0	2.6
July 8.8	54.39	2.87	55.2	1.2	33.45	1.12	51.6	1.6	33.92	1.23	34.9	0.3	10.15	0.82	55.2	2.8	37.57	1.80	51.4	2.4
18.8	57.26	2.74	56.4	1.7	34.57	1.19	50.0	1.1	35.15	1.27	34.6	0.2	10.97	0.99	52.4	2.3	39.37	2.14	49.0	2.0
28.8	60.00	2.56	58.1	2.2	35.76	1.22	48.9	0.5	36.42	1.28	34.8	0.7	11.96	1.12	50.1	1.9	41.51	2.42	47.0	1.7
Aug. 7.8	62.56	2.30	60.3	2.6	36.98	1.21	48.4	0.0	37.70	1.27	35.5	1.2	13.08	1.23	48.2	1.3	43.93	2.66	45.3	1.3
17.7	64.86	2.01	62.9	3.0	38.19	1.17	48.4	0.7	38.97	1.23	36.7	1.7	14.31	1.29	46.9	0.8	46.59	2.84	44.0	0.9
27.7	66.87	1.68	65.9	3.3	39.36	1.08	49.1	1.3	40.20	1.16	38.4	2.0	15.60	1.32	46.1	0.1	49.43	2.96	43.1	0.5
Sept. 6.7	68.55	1.30	69.2	3.5	40.44	0.97	50.4	1.8	41.36	1.08	40.4	2.4	16.92	1.29	46.0	0.5	52.39	3.03	42.6	0.0
16.6	69.85	0.90	72.7	3.7	41.41	0.82	52.2	2.4	42.44	0.98	42.8	2.7	18.21	1.23	46.5	1.1	55.42	3.04	42.6	0.5
26.6	70.75	0.48	76.4	3.8	42.23	0.64	54.6	2.7	43.42	0.85	45.5	3.0	19.44	1.13	47.6	1.6	58.46	2.98	43.1	0.9
Oct. 6.6	71.23	0.03	80.2	3.8	42.87	0.44	57.3	3.0	44.27	0.71	48.5	3.3	20.57	0.98	49.2	2.2	61.44	2.87	44.0	1.4
16.6	71.26	0.41	84.0	3.7	43.31	0.22	60.3	3.2	44.98	0.55	51.8	3.3	21.55	0.80	51.4	2.7	64.31	2.70	45.4	1.8
26.5	70.85	0.86	87.7	3.6	43.53	0.00	63.5	3.2	45.53	0.38	55.1	3.5	22.35	0.58	54.1	3.0	67.01	2.46	47.2	2.2
Nov. 5.5	69.99	1.30	91.3	3.3	43.53	0.22	66.7	3.2	45.91	0.19	58.6	3.4	22.93	0.35	57.1	3.2	69.47	2.15	49.4	2.5
15.5	68.69	1.71	94.6	3.0	43.31	0.44	69.9	3.0	46.10	0.01	62.0	3.4	23.28	0.10	60.3	3.3	71.62	1.78	51.9	2.9
25.5	66.98	2.10	97.6	2.6	42.87	0.64	72.9	2.7	46.11	0.19	65.4	3.2	23.38	0.15	63.6	3.3	73.40	1.37	54.8	3.1
Dec. 5.4	64.88	2.41	100.2	2.0	42.23	0.81	75.6	2.3	45.92	0.38	68.6	3.0	23.23	0.40	66.9	3.2	74.77	0.91	57.9	3.2
15.4	62.47	2.68	102.2	1.5	41.42	0.96	77.9	1.8	45.54	0.57	71.6	2.6	22.83	0.64	70.1	3.0	75.68	0.41	61.1	3.4
25.4	59.79	2.86	103.7	0.9	40.46	1.08	79.7	1.2	44.97	0.73	74.2	2.1	22.19	0.85	73.1	2.6	76.09	0.11	64.5	3.3
35.3	56.93		104.6		39.38		80.9		44.24		76.3		21.34		75.7		75.98		67.8	

FIXED STARS, 1906.

(CONSTANTS OF PARIS CONFERENCE.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Mensæ.				25 Camelop. (H.)				1 Draconis (H.).				ζ Chamæleontis.				δ² Chamæleontis.			
	Right Ascension.		Declination *South*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *North*.		Right Ascension.		Declination *South*.		Right Ascension.		Declination *South*.	
	h m 6 47		° ′ −80 42		h m 7 11		° ′ +82 35		h m 9 23		° ′ +81 44		h m 9 36		° ′ −80 30		h m 10 44		° ′ −80 2	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.6	62.93	0.28	59.9	3.5	27.63	0.49	29.7	3.1	47.08	1.23	18.0	2.1	49.13	0.73	55.7	3.3	60.86	1.02	21.0	2.8
10.6	62.65	0.54	63.4	3.3	28.12	0.15	32.8	3.1	48.31	0.98	20.1	2.5	49.86	0.50	59.0	3.6	61.88	0.85	23.8	3.1
20.5	62.11	0.77	66.7	3.1	28.27	0.20	35.9	3.1	49.29	0.70	22.6	2.8	50.36	0.27	62.6	3.8	62.73	0.66	26.9	3.5
30.5	61.34	0.98	69.8	2.8	28.07	0.54	39.0	2.9	49.99	0.39	25.4	3.1	50.63	0.03	66.4	3.8	63.39	0.45	30.4	3.7
Feb. 9.5	60.36	1.17	72.6	2.4	27.53	0.84	41.9	2.7	50.38	0.08	28.5	3.1	50.66	0.20	70.2	3.8	63.84	0.24	34.1	3.8
19.5	59.19	1.31	75.0	2.0	26.69	1.11	44.6	2.3	50.46	0.22	31.6	3.1	50.46	0.42	74.0	3.6	64.08	0.03	37.9	3.9
Mar. 1.4	57.88	1.42	77.0	1.5	25.58	1.32	46.9	1.8	50.24	0.51	34.7	2.9	50.04	0.63	77.6	3.5	64.11	0.18	41.8	3.8
11.4	56.46	1.49	78.5	1.0	24.26	1.47	48.7	1.3	49.73	0.76	37.6	2.7	49.41	0.81	81.1	3.2	63.93	0.37	45.6	3.7
21.4	54.97	1.53	79.5	0.4	22.79	1.56	50.0	0.7	48.97	0.99	40.3	2.3	48.60	0.97	84.3	2.9	63.56	0.54	49.3	3.4
31.3	53.44	1.52	79.9	0.1	21.23	1.58	50.7	0.1	47.98	1.15	42.6	1.8	47.63	1.10	87.2	2.4	63.02	0.71	52.7	3.2
Apr. 10.3	51.92	1.48	79.8	0.6	19.65	1.53	50.8	0.4	46.83	1.26	44.4	1.3	46.53	1.20	89.6	2.0	62.31	0.85	55.9	2.8
20.3	50.44	1.40	79.2	1.1	18.12	1.42	50.4	1.0	45.57	1.33	45.7	0.7	45.33	1.27	91.6	1.5	61.46	0.96	58.7	2.4
30.3	49.04	1.30	78.1	1.5	16.70	1.27	49.4	1.5	44.24	1.35	46.4	0.2	44.06	1.31	93.1	1.0	60.50	1.06	61.1	1.9
May 10.2	47.74	1.16	76.6	2.0	15.43	1.06	47.9	2.0	42.89	1.30	46.6	0.4	42.75	1.32	94.1	0.5	59.44	1.12	63.0	1.4
20.2	46.58	0.99	74.6	2.4	14.37	0.82	45.9	2.3	41.59	1.22	46.2	0.9	41.43	1.31	94.6	0.1	58.32	1.17	64.4	0.9
30.2	45.59	0.81	72.2	2.8	13.55	0.56	43.6	2.6	40.37	1.10	45.3	1.5	40.12	1.25	94.5	0.6	57.15	1.18	65.3	0.3
June 9.2	44.78	0.60	69.4	3.0	12.99	0.27	41.0	2.8	39.27	0.95	43.8	1.9	38.87	1.18	93.9	1.2	55.97	1.17	65.6	0.2
19.1	44.18	0.38	66.4	3.2	12.72	0.01	38.2	2.9	38.32	0.76	41.9	2.3	37.69	1.07	92.7	1.6	54.80	1.13	65.4	0.7
29.1	43.80	0.15	63.2	3.3	12.73	0.29	35.3	3.0	37.56	0.56	39.6	2.6	36.62	0.93	91.1	2.1	53.67	1.06	64.7	1.3
July 9.1	43.65	0.08	59.9	3.3	13.02	0.57	32.3	2.9	37.00	0.34	37.0	3.0	35.69	0.77	89.0	2.5	52.61	0.95	63.4	1.8
19.0	43.73	0.32	56.6	3.2	13.59	0.84	29.4	2.9	36.66	0.12	34.0	3.1	34.92	0.58	86.5	2.8	51.66	0.82	61.6	2.2
29.0	44.05	0.54	53.4	3.0	14.43	1.08	26.5	2.7	36.54	0.10	30.9	3.3	34.34	0.37	83.7	3.0	50.84	0.66	59.4	2.5
Aug. 8.0	44.59	0.74	50.4	2.8	15.51	1.31	23.8	2.5	36.64	0.34	27.6	3.4	33.97	0.16	80.7	3.2	50.18	0.49	56.9	2.9
18.0	45.33	0.94	47.6	2.4	16.82	1.51	21.3	2.3	36.98	0.56	24.2	3.3	33.81	0.07	77.5	3.2	49.69	0.28	54.0	3.1
27.9	46.27	1.10	45.2	1.9	18.33	1.68	19.0	1.9	37.54	0.77	20.9	3.3	33.88	0.31	74.3	3.1	49.41	0.06	50.9	3.1
Sept. 6.9	47.37	1.22	43.3	1.4	20.01	1.82	17.1	1.5	38.31	0.98	17.6	3.2	34.19	0.53	71.2	2.9	49.35	0.16	47.8	3.1
16.9	48.59	1.31	41.9	0.8	21.83	1.93	15.6	1.2	39.29	1.17	14.4	2.9	34.72	0.75	68.3	2.6	49.51	0.39	44.7	3.0
26.9	49.90	1.36	41.1	0.2	23.76	2.00	14.4	0.7	40.46	1.34	11.5	2.7	35.47	0.95	65.7	2.2	49.90	0.61	41.7	2.7
Oct. 6.8	51.26	1.36	40.9	0.5	25.76	2.04	13.7	0.3	41.80	1.49	8.8	2.3	36.42	1.11	63.5	1.7	50.51	0.82	39.0	2.4
16.8	52.62	1.30	41.4	1.1	27.80	2.03	13.4	0.2	43.29	1.61	6.5	1.9	37.53	1.24	61.8	1.1	51.33	0.99	36.6	1.9
26.8	53.92	1.20	42.5	1.7	29.83	1.98	13.6	0.7	44.90	1.72	4.6	1.5	38.77	1.33	60.7	0.5	52.32	1.14	34.7	1.3
Nov. 5.7	55.12	1.05	44.2	2.3	31.81	1.89	14.3	1.1	46.62	1.77	3.1	0.9	40.10	1.36	60.2	0.2	53.46	1.25	33.4	0.7
15.7	56.17	0.87	46.5	2.7	33.70	1.75	15.4	1.6	48.39	1.79	2.2	0.4	41.46	1.36	60.4	0.8	54.71	1.32	32.7	0.1
25.7	57.04	0.65	49.2	3.1	35.45	1.55	17.0	2.1	50.18	1.76	1.8	0.1	42.82	1.29	61.2	1.5	56.03	1.33	32.6	0.6
Dec. 5.7	57.69	0.41	52.3	3.4	37.00	1.31	19.1	2.5	51.94	1.69	1.9	0.8	44.11	1.19	62.7	2.1	57.36	1.30	33.2	1.3
15.6	58.10	0.14	55.7	3.5	38.31	1.04	21.6	2.7	53.63	1.55	2.7	1.3	45.30	1.03	64.8	2.6	58.66	1.22	34.5	1.9
25.6	58.24	0.12	59.2	3.5	39.35	0.72	24.3	3.0	55.18	1.38	4.0	1.8	46.33	0.85	67.4	3.1	59.88	1.11	36.4	2.4
35.6	58.12		62.7		40.07		27.3		56.56		5.8		47.18		70.5		60.99		38.8	

(CONSTANTS OF PARIS CONFERENCE.)

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Octantis.				β Chamæleontis.				32² Camelop. (H.)				κ Octantis.				δ Octantis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h m		° ′	
	10 59		−84 4		12 12		−78 47		12 48		+83 54		13 25		−85 17		14 11		−83 13	
	s		″		s		″		s		″		s		″		s		″	
Jan. 0.7	69.48	1.74	57.4	2.4	51.69	1.18	0.9	1.7	20.11	2.21	71.0	0.5	36.07	2.90	50.6	0.5	43.77	2.05	50.2	0.2
10.7	71.22	1.48	59.8	3.0	52.87	1.09	2.6	2.2	22.32	2.19	70.5	0.1	38.97	2.86	51.1	1.1	45.82	2.09	50.0	0.5
20.7	72.70	1.18	62.8	3.3	53.96	0.98	4.8	2.7	24.51	2.10	70.6	0.7	41.83	2.74	52.2	1.7	47.91	2.07	50.5	1.0
30.7	73.88	0.85	66.1	3.6	54.94	0.84	7.5	3.2	26.61	1.92	71.3	1.4	44.57	2.55	53.9	2.2	49.98	2.01	51.5	1.6
Feb. 9.6	74.73	0.52	69.7	3.8	55.78	0.69	10.7	3.4	28.53	1.69	72.7	2.0	47.12	2.31	56.1	2.6	51.99	1.88	53.1	2.1
19.6	75.25	0.17	73.5	3.8	56.47	0.52	14.1	3.6	30.22	1.39	74.7	2.4	49.43	2.01	58.7	3.0	53.87	1.72	55.2	2.5
Mar. 1.6	75.42	0.17	77.3	3.9	56.99	0.35	17.7	3.8	31.61	1.05	77.1	2.7	51.44	1.67	61.7	3.3	55.59	1.53	57.7	2.8
11.5	75.25	0.50	81.2	3.8	57.34	0.18	21.5	3.8	32.66	0.68	79.8	3.1	53.11	1.32	65.0	3.6	57.12	1.31	60.5	3.2
21.5	74.75	0.81	85.0	3.6	57.52	0.01	25.3	3.7	33.34	0.28	82.9	3.1	54.43	0.93	68.6	3.7	58.43	1.07	63.7	3.4
31.5	73.94	1.08	88.6	3.3	57.53	0.16	29.0	3.6	33.62	0.10	86.0	3.2	55.36	0.54	72.3	3.7	59.50	0.81	67.1	3.5
Apr. 10.5	72.86	1.33	91.9	3.0	57.37	0.31	32.6	3.5	33.52	0.46	89.2	3.0	55.90	0.14	76.0	3.7	60.31	0.54	70.6	3.5
20.4	71.53	1.55	94.9	2.6	57.06	0.45	36.1	3.1	33.06	0.80	92.2	2.8	56.04	0.25	79.7	3.6	60.85	0.26	74.1	3.6
30.4	69.98	1.73	97.5	2.2	56.61	0.59	39.2	2.8	32.26	1.11	95.0	2.5	55.79	0.65	83.3	3.4	61.11	0.02	77.7	3.5
May 10.4	68.25	1.88	99.7	1.7	56.02	0.70	42.0	2.5	31.15	1.37	97.5	2.1	55.14	1.01	86.7	3.2	61.09	0.29	81.2	3.3
20.4	66.37	1.97	101.4	1.2	55.32	0.81	44.5	1.9	29.78	1.57	99.6	1.6	54.13	1.36	89.9	2.8	60.80	0.57	84.5	3.1
30.3	64.40	2.02	102.6	0.7	54.51	0.89	46.4	1.5	28.21	1.73	101.2	1.1	52.77	1.68	92.7	2.5	60.23	0.82	87.6	2.8
June 9.3	62.38	2.03	103.3	0.1	53.62	0.95	47.9	1.0	26.48	1.82	102.3	0.6	51.09	1.95	95.2	2.0	59.41	1.05	90.4	2.4
19.3	60.35	1.98	103.4	0.5	52.67	0.98	48.9	0.4	24.66	1.88	102.9	0.0	49.14	2.17	97.2	1.5	58.36	1.26	92.8	2.0
29.2	58.37	1.89	102.9	1.0	51.69	0.99	49.3	0.1	22.78	1.87	102.9	0.6	46.97	2.34	98.7	1.0	57.10	1.44	94.8	1.5
July 9.2	56.48	1.73	101.9	1.5	50.70	0.97	49.2	0.7	20.91	1.82	102.3	1.1	44.63	2.44	99.7	0.4	55.66	1.57	96.3	1.0
19.2	54.75	1.52	100.4	2.0	49.73	0.93	48.5	1.2	19.09	1.73	101.2	1.7	42.19	2.46	100.1	0.1	54.09	1.66	97.3	0.4
29.2	53.23	1.28	98.4	2.4	48.80	0.84	47.3	1.7	17.36	1.60	99.5	2.1	39.73	2.41	100.0	0.7	52.43	1.69	97.7	0.1
Aug. 8.1	51.95	0.98	96.0	2.7	47.96	0.74	45.6	2.2	15.76	1.42	97.4	2.5	37.32	2.28	99.3	1.3	50.74	1.66	97.6	0.7
18.1	50.97	0.64	93.3	3.0	47.22	0.61	43.4	2.5	14.34	1.22	94.9	2.9	35.04	2.07	98.0	1.8	49.08	1.58	96.9	1.2
28.1	50.33	0.28	90.3	3.1	46.61	0.44	40.9	2.8	13.12	0.99	92.0	3.3	32.97	1.78	96.2	2.2	47.50	1.44	95.7	1.7
Sept. 7.1	50.05	0.11	87.2	3.2	46.17	0.26	38.1	3.0	12.13	0.73	88.7	3.5	31.19	1.41	94.0	2.5	46.06	1.24	94.0	2.2
17.0	50.16	0.49	84.0	3.1	45.91	0.05	35.1	3.1	11.40	0.44	85.2	3.7	29.78	0.99	91.5	2.9	44.82	0.98	91.8	2.6
27.0	50.65	0.87	80.9	2.8	45.86	0.15	32.0	3.0	10.96	0.15	81.5	3.9	28.79	0.52	88.6	3.1	43.84	0.69	89.2	2.8
Oct. 7.0	51.52	1.22	78.1	2.5	46.01	0.36	29.0	2.9	10.81	0.17	77.6	3.9	28.27	0.02	85.5	3.1	43.15	0.35	86.4	3.0
16.9	52.74	1.53	75.6	2.1	46.37	0.57	26.1	2.6	10.98	0.49	73.7	3.8	28.25	0.50	82.4	3.0	42.80	0.01	83.4	3.0
26.9	54.27	1.80	73.5	1.6	46.94	0.76	23.5	2.2	11.47	0.82	69.9	3.7	28.75	1.01	79.4	2.9	42.81	0.38	80.4	3.0
Nov. 5.9	56.07	1.99	71.9	1.0	47.70	0.93	21.3	1.7	12.29	1.13	66.2	3.4	29.76	1.49	76.5	2.5	43.19	0.73	77.4	2.8
15.9	58.06	2.13	70.9	0.4	48.63	1.06	19.6	1.2	13.42	1.43	62.8	3.1	31.25	1.91	74.0	2.2	43.92	1.08	74.6	2.5
25.8	60.19	2.18	70.5	0.3	49.69	1.16	18.4	0.5	14.85	1.70	59.7	2.7	33.16	2.28	71.8	1.6	45.00	1.39	72.1	2.1
Dec. 5.8	62.37	2.14	70.8	0.9	50.85	1.22	17.9	0.0	16.55	1.91	57.0	2.2	35.44	2.56	70.2	1.1	46.39	1.64	70.0	1.6
15.8	64.51	2.05	71.7	1.6	52.07	1.24	17.9	0.8	18.46	2.09	54.8	1.6	38.00	2.76	69.1	0.5	48.03	1.84	68.4	1.1
25.8	66.56	1.86	73.3	2.2	53.31	1.21	18.7	1.3	20.55	2.19	53.2	1.0	40.76	2.87	68.6	0.2	49.87	1.99	67.3	0.5
35.7	68.42		75.5		54.52		20.0		22.74		52.2		43.63		68.8		51.86		66.8	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Apodis.				ρ Octantis.				γ Apodis.				ε Ursæ Minoris.				σ Octantis.			
	Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*	
	h m		° ′		h m		° ′		h m		° ′		h m		° ′		h		° ′	
	14 36		−78 38		15 21		−84 8		16 18		−78 40		16 55		+82 11		19		−89 14	
	s		″		s		″		s		″		s		″		m s		″	
Jan. 0.9	6.06	1.25	21.1	0.3	22.36	2.19	47.7	1.2	54.22	1.04	53.2	1.7	25.60	0.70	34.2	3.3	7 36.4	3.5	39.3	3.4
10.9	7.31	1.29	20.8	0.2	24.55	2.35	46.5	0.6	55.26	1.17	51.5	1.3	26.30	0.98	30.9	2.9	7 39.9	6.6	35.9	3.3
20.9	8.60	1.30	21.0	0.7	26.90	2.46	45.9	0.1	56.43	1.26	50.2	0.9	27.28	1.22	28.0	2.6	7 46.5	9.4	32.6	3.1
30.8	9.90	1.28	21.7	1.3	29.36	2.50	45.8	0.5	57.69	1.32	49.3	0.3	28.50	1.41	25.4	2.0	7 55.9	11.9	29.5	2.9
Feb. 9.8	11.18	1.22	23.0	1.8	31.86	2.46	46.3	1.0	59.01	1.34	49.0	0.2	29.91	1.55	23.4	1.4	8 7.8	14.1	26.6	2.5
19.8	12.40	1.14	24.8	2.2	34.32	2.37	47.3	1.5	60.35	1.35	49.2	0.6	31.46	1.63	22.0	0.7	8 21.9	16.0	24.1	2.1
Mar. 1.8	13.54	1.03	27.0	2.6	36.69	2.24	48.8	2.0	61.70	1.31	49.8	1.1	33.09	1.65	21.3	0.1	8 37.9	17.3	22.0	1.7
11.7	14.57	0.91	29.6	2.8	38.93	2.06	50.8	2.3	63.01	1.26	50.9	1.5	34.74	1.60	21.2	0.6	8 55.2	18.3	20.3	1.3
21.7	15.48	0.78	32.4	3.1	40.99	1.85	53.1	2.7	64.27	1.17	52.4	1.9	36.34	1.50	21.8	1.2	9 13.5	19.0	19.0	0.8
31.7	16.26	0.63	35.5	3.3	42.84	1.59	55.8	3.0	65.44	1.08	54.3	2.2	37.84	1.35	23.0	1.7	9 32.5	19.1	18.2	0.4
Apr. 10.6	16.89	0.48	38.8	3.4	44.43	1.31	58.8	3.1	66.52	0.96	56.5	2.5	39.19	1.16	24.7	2.2	9 51.6	18.9	17.8	0.2
20.6	17.37	0.31	42.2	3.4	45.74	1.01	61.9	3.3	67.48	0.82	59.0	2.8	40.35	0.93	26.9	2.6	10 10.5	18.3	18.0	0.6
30.6	17.68	0.15	45.6	3.4	46.75	0.68	65.2	3.4	68.30	0.67	61.8	2.9	41.28	0.68	29.5	2.9	10 28.8	17.3	18.6	1.1
May 10.6	17.83	0.02	49.0	3.2	47.43	0.35	68.6	3.4	68.97	0.51	64.7	3.0	41.96	0.41	32.4	3.1	10 46.1	16.0	19.7	1.6
20.5	17.81	0.19	52.2	3.0	47.78	0.00	72.0	3.3	69.48	0.33	67.7	3.1	42.37	0.12	35.5	3.2	11 2.1	14.3	21.3	2.0
30.5	17.62	0.34	55.2	2.8	47.78	0.33	75.3	3.1	69.81	0.15	70.8	3.0	42.49	0.16	38.7	3.2	11 16.4	12.3	23.3	2.3
June 9.5	17.28	0.50	58.0	2.5	47.45	0.66	78.4	3.0	69.96	0.03	73.8	3.0	42.33	0.43	41.9	3.0	11 28.7	10.0	25.6	2.6
19.5	16.78	0.63	60.5	2.1	46.79	0.98	81.4	2.6	69.93	0.22	76.8	2.8	41.90	0.69	44.9	2.8	11 38.7	7.4	28.2	2.9
29.4	16.15	0.76	62.6	1.7	45.81	1.26	84.0	2.3	69.71	0.39	79.6	2.5	41.21	0.94	47.7	2.6	11 46.1	4.7	31.1	3.0
July 9.4	15.39	0.85	64.3	1.1	44.55	1.52	86.3	1.8	69.32	0.55	82.1	2.2	40.27	1.15	50.3	2.2	11 50.8	1.8	34.1	3.1
19.4	14.54	0.93	65.4	0.7	43.03	1.72	88.1	1.3	68.77	0.70	84.3	1.9	39.12	1.35	52.5	1.9	11 52.6	1.2	37.2	3.1
29.3	13.61	0.97	66.1	0.1	41.31	1.86	89.4	0.8	68.07	0.82	86.2	1.4	37.77	1.50	54.4	1.4	11 51.4	4.0	40.3	3.0
Aug. 8.3	12.64	0.98	66.2	0.4	39.45	1.96	90.2	0.3	67.25	0.92	87.6	0.9	36.27	1.63	55.8	0.9	11 47.4	6.9	43.3	2.8
18.3	11.66	0.95	65.8	0.9	37.49	1.97	90.5	0.3	66.33	0.99	88.5	0.4	34.64	1.71	56.7	0.5	11 40.5	9.5	46.1	2.5
28.3	10.71	0.90	64.9	1.5	35.52	1.92	90.2	0.9	65.34	1.01	88.9	0.1	32.93	1.77	57.2	0.1	11 31.0	11.8	48.6	2.1
Sept. 7.2	9.81	0.79	63.4	1.9	33.60	1.80	89.3	1.4	64.33	0.99	88.8	0.7	31.16	1.78	57.1	0.6	11 19.2	13.6	50.7	1.6
17.2	9.02	0.65	61.5	2.3	31.80	1.59	87.9	1.9	63.34	0.94	88.1	1.2	29.38	1.74	56.5	1.0	11 5.6	14.9	52.3	1.1
27.2	8.37	0.49	59.2	2.6	30.21	1.32	86.0	2.3	62.40	0.84	86.9	1.6	27.64	1.67	55.5	1.6	10 50.7	15.9	53.4	0.4
Oct. 7.2	7.88	0.30	56.6	2.8	28.89	0.99	83.7	2.7	61.56	0.70	85.3	2.1	25.97	1.56	53.9	2.0	10 34.8	15.9	53.8	0.1
17.1	7.58	0.08	53.8	3.0	27.90	0.61	81.0	2.9	60.86	0.53	83.2	2.5	24.41	1.40	51.9	2.5	10 18.9	15.5	53.7	0.7
27.1	7.50	0.14	50.8	2.9	27.29	0.20	78.1	3.0	60.33	0.33	80.7	2.7	23.01	1.20	49.4	2.8	10 3.4	14.4	53.0	1.4
Nov. 6.1	7.64	0.36	47.9	2.8	27.09	0.23	75.1	3.0	60.00	0.12	78.0	2.8	21.81	0.97	46.6	3.2	9 49.0	12.7	51.6	1.9
16.0	8.00	0.58	45.1	2.5	27.32	0.67	72.1	2.9	59.88	0.12	75.2	2.9	20.84	0.70	43.4	3.4	9 36.3	10.5	49.7	2.4
26.0	8.58	0.78	42.6	2.2	27.99	1.07	69.2	2.7	60.00	0.34	72.3	2.8	20.14	0.41	40.0	3.6	9 25.8	7.9	47.3	2.8
Dec. 6.0	9.36	0.96	40.4	1.7	29.06	1.45	66.5	2.4	60.34	0.57	69.5	2.6	19.73	0.10	36.4	3.7	9 17.9	4.9	44.5	3.1
16.0	10.32	1.09	38.7	1.3	30.51	1.79	64.1	2.0	60.91	0.77	66.9	2.3	19.63	0.21	32.7	3.6	9 13.0	1.7	41.4	3.2
25.9	11.41	1.20	37.4	0.7	32.30	2.06	62.1	1.4	61.68	0.94	64.6	2.0	19.84	0.52	29.1	3.5	9 11.3	1.5	38.2	3.4
35.9	12.61		36.7		34.36		60.7		62.62		62.6		20.36		25.6		9 12.8		34.8	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	12 Year Cat. 1879.				λ¹ Octantis.				υ Octantis.				β Octantis.				γ¹ Octantis.			
	Right Ascension.		Declination *North.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*		Right Ascension.		Declination *South.*	
	h m 20 51		° ′ +80 11		h m 21 36		° ′ −83 8		h m 22 13		° ′ −86 26		h m 22 36		° ′ −81 52		h m 23 46		° ′ −82 32	
	s		″		s		″		s		″		s		″		s		″	
Jan. 1.2	48.42	0.70	74.4	2.9	20.64	0.75	79.0	2.9	28.30	2.05	62.3	2.8	19.60	0.97	47.1	2.4	29.39	1.41	51.9	1.7
11.1	47.72	0.49	71.5	3.2	19.89	0.45	76.1	3.2	26.25	1.53	59.5	3.1	18.63	0.77	44.7	2.8	27.98	1.27	50.2	2.1
21.1	47.23	0.24	68.3	3.3	19.44	0.14	72.9	3.5	24.72	0.97	56.4	3.4	17.86	0.54	41.9	3.2	26.71	1.09	48.1	2.7
31.1	46.99	0.00	65.0	3.4	19.30	0.16	69.4	3.5	23.75	0.40	53.0	3.6	17.32	0.31	38.7	3.5	25.62	0.88	45.4	3.1
Feb. 10.0	46.99	0.25	61.6	3.4	19.46	0.46	65.9	3.6	23.35	0.17	49.4	3.7	17.01	0.06	35.2	3.6	24.74	0.65	42.3	3.3
20.0	47.24	0.48	58.2	3.1	19.92	0.75	62.3	3.6	23.52	0.74	45.7	3.8	16.95	0.17	31.6	3.7	24.09	0.41	39.0	3.6
Mar. 2.0	47.72	0.70	55.1	2.8	20.67	1.01	58.7	3.4	24.26	1.28	41.9	3.6	17.12	0.42	27.9	3.7	23.68	0.15	35.4	3.8
12.0	48.42	0.89	52.3	2.4	21.68	1.25	55.3	3.1	25.54	1.78	38.3	3.5	17.54	0.64	24.2	3.6	23.53	0.10	31.6	3.8
21.9	49.31	1.04	49.9	1.9	22.93	1.47	52.2	2.9	27.32	2.24	34.8	3.3	18.18	0.85	20.6	3.4	23.63	0.35	27.8	3.8
31.9	50.35	1.16	48.0	1.3	24.40	1.66	49.3	2.6	29.56	2.64	31.5	3.0	19.03	1.05	17.2	3.2	23.98	0.60	24.0	3.7
Apr. 10.9	51.51	1.24	46.7	0.7	26.06	1.80	46.7	2.2	32.20	3.00	28.5	2.6	20.08	1.22	14.0	2.9	24.58	0.83	20.3	3.5
20.9	52.75	1.27	46.0	0.0	27.86	1.92	44.5	1.7	35.20	3.29	25.9	2.2	21.30	1.38	11.1	2.6	25.41	1.05	16.8	3.3
30.8	54.02	1.27	46.0	0.6	29.78	1.99	42.8	1.2	38.49	3.51	23.7	1.7	22.68	1.50	8.5	2.1	26.46	1.25	13.5	2.9
May 10.8	55.29	1.21	46.6	1.1	31.77	2.02	41.6	0.7	42.00	3.66	22.0	1.3	24.18	1.59	6.4	1.6	27.71	1.42	10.6	2.5
20.8	56.50	1.12	47.7	1.7	33.79	2.02	40.9	0.3	45.66	3.72	20.7	0.7	25.77	1.64	4.8	1.1	29.13	1.56	8.1	2.0
30.7	57.62	1.00	49.4	2.2	35.81	1.96	40.6	0.3	49.38	3.70	20.0	0.2	27.41	1.67	3.7	0.6	30.69	1.67	6.1	1.6
June 9.7	58.62	0.85	51.6	2.7	37.77	1.85	40.9	0.8	53.08	3.60	19.8	0.4	29.08	1.65	3.1	0.1	32.36	1.73	4.5	1.0
19.7	59.47	0.68	54.3	2.9	39.62	1.70	41.7	1.3	56.68	3.40	20.2	0.9	30.73	1.59	3.0	0.5	34.09	1.75	3.5	0.5
29.7	60.15	0.48	57.2	3.3	41.32	1.51	43.0	1.7	60.08	3.11	21.1	1.4	32.32	1.48	3.5	1.0	35.84	1.72	3.0	0.1
July 9.6	60.63	0.28	60.5	3.4	42.83	1.28	44.7	2.2	63.19	2.73	22.5	1.9	33.80	1.33	4.5	1.5	37.56	1.65	3.1	0.7
19.6	60.91	0.07	63.9	3.5	44.11	1.00	46.9	2.5	65.92	2.28	24.4	2.3	35.13	1.15	6.0	2.0	39.21	1.52	3.8	1.2
29.6	60.98	0.14	67.4	3.6	45.11	0.70	49.4	2.8	68.20	1.77	26.7	2.6	36.28	0.94	8.0	2.3	40.73	1.36	5.0	1.7
Aug. 8.6	60.84	0.34	71.0	3.5	45.81	0.37	52.2	2.9	69.97	1.18	29.3	2.9	37.22	0.69	10.3	2.7	42.09	1.15	6.7	2.2
18.5	60.50	0.55	74.5	3.4	46.18	0.04	55.1	3.0	71.15	0.56	32.2	3.0	37.91	0.42	13.0	2.9	43.24	0.90	8.9	2.5
28.5	59.95	0.73	77.9	3.1	46.22	0.29	58.1	3.0	71.71	0.08	35.2	3.1	38.33	0.14	15.9	3.0	44.14	0.63	11.4	2.9
Sept. 7.5	59.22	0.90	81.0	2.9	45.93	0.62	61.1	2.9	71.63	0.72	38.3	3.0	38.47	0.15	18.9	3.1	44.77	0.32	14.3	3.0
17.4	58.32	1.05	83.9	2.6	45.31	0.93	64.0	2.6	70.91	1.34	41.3	2.9	38.32	0.42	22.0	2.9	45.09	0.02	17.3	3.1
27.4	57.27	1.18	86.5	2.1	44.38	1.19	66.6	2.2	69.57	1.91	44.2	2.6	37.90	0.69	24.9	2.7	45.11	0.30	20.4	3.1
Oct. 7.4	56.09	1.27	88.6	1.7	43.19	1.41	68.8	1.8	67.66	2.42	46.8	2.2	37.21	0.92	27.6	2.4	44.81	0.59	23.5	2.9
17.4	54.82	1.34	90.3	1.2	41.78	1.56	70.6	1.3	65.24	2.82	49.0	1.7	36.29	1.12	30.0	2.0	44.22	0.87	26.4	2.7
27.3	53.48	1.37	91.5	0.7	40.22	1.66	71.9	0.7	62.42	3.11	50.7	1.1	35.17	1.27	32.0	1.5	43.35	1.10	29.1	2.2
Nov. 6.3	52.11	1.38	92.2	0.1	38.56	1.68	72.6	0.1	59.31	3.28	51.8	0.6	33.90	1.37	33.5	0.9	42.25	1.30	31.3	1.8
16.3	50.73	1.34	92.3	0.5	36.88	1.65	72.7	0.5	56.03	3.33	52.4	0.1	32.53	1.41	34.4	0.3	40.95	1.44	33.1	1.2
26.3	49.39	1.27	91.8	1.1	35.23	1.54	72.2	1.2	52.70	3.25	52.3	0.8	31.12	1.40	34.7	0.3	39.51	1.54	34.3	0.7
Dec. 6.2	48.12	1.15	90.7	1.7	33.69	1.38	71.0	1.7	49.45	3.04	51.5	1.4	29.72	1.33	34.4	0.9	37.97	1.57	35.0	0.0
16.2	46.97	1.01	89.0	2.2	32.31	1.16	69.3	2.2	46.41	2.72	50.1	1.9	28.39	1.22	33.5	1.6	36.40	1.54	35.0	0.7
26.2	45.96	0.84	86.8	2.6	31.15	0.91	67.1	2.7	43.69	2.31	48.2	2.5	27.17	1.07	31.9	2.1	34.86	1.47	34.3	1.3
36.1	45.12		84.2		30.24		64.4		41.38		45.7		26.10		29.8		33.39		33.0	

ON THE ARRANGEMENT AND USE OF THE AMERICAN EPHEMERIS AND NAUTICAL ALMANAC.

The first part of this Ephemeris, embracing the positions of the Sun and Moon, the distances of the Moon from the center of the Sun, from the centers of the four most conspicuous planets, and from certain fixed stars, together with the ephemerides of the planets Mercury, Venus, Mars, Jupiter, and Saturn, is designed for the special use of navigators. The remainder of the work is intended to meet the wants of astronomers. It contains the ephemerides of Uranus and Neptune, the heliocentric co-ordinates of the seven major planets, the rectangular equatorial co-ordinates of the Sun, the Moon's longitude and latitude, data for the libration of the Moon, the obliquity of the ecliptic, the nutation, the positions of 383 standard stars, the ephemeris for the meridian of Washington, etc.

TIME.

Astronomers make use of three different kinds of time, namely: First, true or apparent solar time; second, mean solar time; third, sidereal time.

True or Apparent Solar Time.—This species of time is called indiscriminately either true solar time or apparent solar time, and is measured by the motion of the true Sun; the length of the day being the interval between two successive transits of the Sun over the same meridian, and the time of day being always the hour angle of the Sun from the meridian. This is the most obvious and natural measure of time, but owing to the obliquity of the ecliptic and the varying motion of the Earth in its orbit, the intervals between successive returns of the Sun to the same meridian are not exactly equal, and consequently ordinary clocks and chronometers can not be regulated to true solar time.

Mean Solar Time.—To avoid the irregularity which would arise from using the true solar day, astronomers have recourse to a mean solar day, whose length is equal to the average of all the true solar days in a year. Just as the true solar day depends upon the motion of the true Sun, so the mean solar day is made to depend upon the motion of an imaginary mean Sun which moves along the equator at a perfectly uniform rate, and whose hour angle from any given meridian is always the mean solar time thereat. Ordinary clocks and watches and the chronometers used by navigators are regulated to this species of time.

Equation of Time.—The imaginary mean Sun is supposed to keep as near the true Sun as is consistent with perfect uniformity of motion, but it is sometimes before and sometimes behind the latter, the greatest difference amounting to rather more than one-quarter of an hour. The interval between the true Sun and the imaginary mean Sun is the equation of time, given on pages I and II of the Ephemeris for the meridian of Greenwich, and a knowledge of it is necessary for converting true solar time into mean solar time, or vice versa. As the mean Sun is an imaginary body, mean solar time can not be directly observed, but it can be got either from observations of the true Sun by applying to them the correction for the equation of time, or from observations of the stars by means of the sidereal time of mean noon, given on page II of the Ephemeris for the meridian of Greenwich.

Sidereal Time.—Sidereal time is measured, roughly speaking, by the daily motion of the stars; or in strict accuracy, by the daily motion of that point in the equator from which the true right ascensions of the stars are counted. The point in question is the vernal equinox, and its hour angle is always the sidereal time. Astronomical clocks are usually regulated to sidereal time, and are then called sidereal clocks.

Sidereal Day.—A sidereal day is the interval between two successive transits of the vernal equinox over the same meridian. It is $3^m\ 55^s.909$ of mean solar time shorter than the mean solar day, the tropical year of 365.2422 solar days being divided into 366.2422 sidereal days, each comprising 24 sidereal hours. The sidereal hours are counted from 0 to 24, commencing with the instant of the passage of the true vernal equinox over the upper meridian, and ending with its return to the same meridian. About March 23 of each year the sidereal clock agrees with the mean-time or ordinary clock, and the former gains on the latter $3^m\ 56^s.555$ of sidereal time per day, so that at the end of a year it will have gained an entire day, and will again agree with the mean-time clock.

Civil Day.—According to the customs of society, the civil day commences at midnight, and comprises twenty-four hours, which extend to the next following midnight. The hours are counted from 0 to 12 in two series; the first, marked A. M., running from midnight to noon, and the second, marked P. M., running from noon to midnight.

Astronomical Day.—The astronomical day begins at noon on the civil day of the same date. It also comprises twenty-four hours, but they are reckoned from 0 to 24, and run from the noon of one day to that of the next following. Astronomical time as well as civil time may be either apparent or mean, according as it is reckoned from apparent noon or from mean noon.

The civil day begins twelve hours before the astronomical day; therefore the first half of the civil day corresponds to the last half of the preceding astronomical day, and the last half of the civil day coincides with the first half of the astronomical day of the same date. Thus, January 9, 2 o'clock, A. M., civil time, is January 8, 14^h, astronomical time; and January 9, 2 o'clock, P. M., civil time, is also January 9, 2^h, astronomical time. Hence, we have the following rules:

To convert Civil Time into Astronomical Time.—If the civil time is marked A. M., take one from the day and add twelve to the hours, and the result will be the corresponding astronomical time; if the civil time is marked P. M., take away the designation P. M., and the astronomical time will result.

To convert Astronomical Time into Civil Time.—If the astronomical time is less than twelve hours, simply write P. M. after it. If greater than twelve hours, subtract twelve hours from it, mark the result A. M., and add one to the days. For example, October 3, 23 hours astronomical time, is October 4, 11 o'clock, A. M., civil time.

To find Greenwich Time.—Express the longitude from Greenwich in time, and when west, add it to the local time, or when east, subtract it from the local time. The result will be the corresponding Greenwich time; mean or sidereal, according as the local time employed is mean or sidereal. For use with Part I of this Ephemeris, Greenwich mean time is ordinarily required.

PART I—THE EPHEMERIS FOR THE MERIDIAN OF GREENWICH.

Pages 2–217 give data arranged under the heads of the several months, and are therefore designated as the Calendar. Each month covers 18 pages, numbered from I to XVIII, whose contents are as follows:

Page I contains, for Greenwich apparent noon of each day, *The Sun's Apparent Right Ascension* and *Declination*, and the *Equation of Time*. Adjoining columns contain the differences of these quantities for one hour. By multiplying any one of these differences by the hours and parts of an hour from Greenwich apparent noon, and adding the product to, or subtracting it from, the corresponding quantity at noon, according as that quantity is increasing or decreasing, we obtain the value of the quantity in question for any given Greenwich apparent time. The hourly differences are given for the instant of apparent noon at Greenwich, but, when great accuracy is required, they should be interpolated for half the hours and parts of an hour of the Greenwich apparent time.

The *Equation of Time* given on page I is the mean time of apparent noon, or the hour angle of the mean Sun at that instant. The heading of the column directs how the equation is to be applied to apparent time, or the time given by an observation of the Sun, in order to get mean time. When in the course of the month there is a change from addition to subtraction or the reverse (as in the months of April and June), the two different directions are separated by a line, while a corresponding line below points out the dates between which the change occurs.

The Sun's Semidiameter and the *Sidereal Time of Semidiameter Passing Meridian* are also given on page I. The semidiameter is used in reducing the altitude of the upper or lower limb of the Sun to the altitude of the center; and in reducing the angular distance between the limb of the Sun and any other object, to the distance from the center of the Sun. The sidereal time of semidiameter passing the meridian is employed in obtaining the passage of the Sun's center over the wires of a transit instrument, when the passage of one limb only has been observed. The quantity found in this column is to be added to the time of transit of the first, or western, limb; and to be subtracted from the time of transit of the second, or eastern, limb.

This page is chiefly used when the Sun is observed on the meridian, at which instant the local apparent time is $0^h\ 0^m\ 0^s$. The longitude from Greenwich expressed in time is then the corresponding Greenwich apparent time, before or after noon according as the longitude is east or west. The longitude of any place is therefore the factor employed in reducing the quantities on this page to apparent noon at that place.

The right ascension of the Sun thus reduced is the sidereal time of local apparent noon, and the difference between that and the clock time of the meridian passage of the Sun is the error of the clock on sidereal time.

The declination of the Sun reduced to the meridian, or apparent noon, of the place, is required in finding the latitude from a meridian altitude of the Sun.

As an example of the use of page I:—

Let the Sun's declination be required at apparent noon, 1906, May 16, at a place whose longitude is 70° 20′, or $4^h\ 41^m\ 20^s$ east from Greenwich:—

		h	m	s
Local apparent time	May 16,	0	0	0
Longitude from Greenwich (subtractive) . . .		4	41	20
Greenwich apparent time	May 15,	19	18	40

Reducing the minutes and seconds to decimals of an hour, we find that this moment is $19^h.311$ after Greenwich apparent noon on May 15, or $4^h.689$ before Greenwich apparent noon on May 16.

On page 74 of the Ephemeris we find that the change of declination in one hour is:

	″
May 15, at Greenwich apparent noon	+ 35.94
May 16, at Greenwich apparent noon	+ 35.15
Difference for one day	— 0.79

If great exactness is desired, we find the amount of this hourly difference for the time which is halfway between Greenwich noon and the time of observation; that is, for 9 hours after Greenwich noon of the 2nd, this being half of 18 hours. Nine hours is 0.38 of a day; so the calculation is as follows:

	″
Difference for one hour, May 15	35.94
Change for 0.40 of a day or 0″.79 × 0.40	— 0.32
Difference at 9 hours after noon	35.62
$35''.62 \times 19.311 = 687''.9 = 11'\ 27''.9$	
	° ′ ″
Declination at Greenwich noon, May 15	N. 18 42 41.3
Change in 19.311 hours (additive)	11 27.9
Sun's declination at time of observation	N. 18 54 9.2

When the time of observation is only a few hours before Greenwich noon, it may be better to count the longitude backward from this nearest noon. Thus, in the example just given, the time is $4^h.689$ before Greenwich noon of May 16; half this interval is about 0.10 of a day, and the hourly motion for the middle of the interval is 35″.23. Then, we find—

	° ′ ″
Declination at Greenwich noon, May 16	N. 18 56 54.5
Product of $35''.23 \times 4.689 = 165''.2$ (subtractive)	2 45.2
Sun's declination at time of observation	N. 18 54 9.3

It will always be well to make the calculation in both ways, as a check; but if the results differ slightly, the one derived from the nearest noon should be regarded as the more accurate. At sea, however, it is ordinarily sufficient to compute the declination to the nearest half minute, and the reduction may then be found by Table 12 of BOWDITCH'S *American Practical Navigator.*

Page II contains, for Greenwich mean noon of each day, *The Sun's Apparent Right Ascension* and *Declination*, the *Equation of Time*, and the *Sidereal Time of Mean Noon.* The hourly changes of these quantities are also given, and may be used in reducing them for the longitude, or to any Greenwich mean time. When great precision is required, these changes should be interpolated for half the Greenwich time, as described in explaining the calculation of the declination.

The *Equation of Time* given on page II is the apparent time of mean noon, and is equivalent to the hour angle of the true Sun at the instant of mean noon. The heading of the column directs how the equation must be applied to mean time in order to obtain apparent time.

The *Sidereal Time of Mean Noon* is the right ascension of the mean Sun at Greenwich mean noon. It may be reduced for the longitude, or to any Greenwich mean time, by using the hourly difference, $9^s.8565$; or by Table III appended to this volume, for reducing intervals of mean solar to sidereal time; or by Table 9 of BOWDITCH'S *Navigator.*

The right ascensions and declinations on pages I and II are affected both by aberration and nutation, and therefore denote the *apparent* positions of the *true* Sun. Page I is used for observations which depend upon apparent time, as when the Sun is observed on the meridian; while page II is used when the times have been noted by a clock or chronometer regulated to mean time, as is the case in most observations of the Sun out of the meridian.

The Sun's declination is required whenever that body is observed for the purpose of finding latitude, local time, or azimuth, and the equation of time is needed in finding the apparent time when determining the latitude from observations of the Sun out of the meridian.

The sidereal time of mean noon, or right ascension of the mean Sun, is useful in converting mean time to sidereal time. We first find the Greenwich mean time, then the right ascension of the mean Sun for that time, and this being added to the local astronomical mean time will give the sidereal time.

The sidereal time of mean noon, reduced for the longitude of the place, is also used in converting sidereal time to mean time. Subtracting the reduced value from the given sidereal time gives the interval of sidereal time from noon, and that is converted into the required mean time by subtracting from it the corresponding reduction of a sidereal interval to a mean-time interval, taken from Table II appended to this volume, or from Table 8 of BOWDITCH's *Navigator*. Instead of using Table II, this reduction may be found by multiplying $9^s.8296$ by the hours and parts of an hour of the sidereal interval from noon.

As examples of the use of page II:—

1.—Let the Sun's right ascension and the equation of time be required for 1906, March 15, $3^h\ 10^m\ 30^s$, P. M., mean time, at a place whose longitude is 110° 20′, or $7^h\ 21^m\ 20^s$, west of Greenwich.

		h	m	s
Local astronomical mean time . . .	March 15,	3	10	30
Longitude from Greenwich (additive) . . .		7	21	20
Greenwich mean time	March 15,	10	31	$50 = 10^h.5305$

Sun's Right Ascension.	h	m	s	*Equation of Time.*	m	s
March 15, Greenwich noon .	23	37	57.72	March 15, Greenwich noon .	9	14.67 (subtractive)
H. D. $9^s.148 \times 10.5305$ . .	+	1	36.33	H. D. $-0^s.708 \times 10.53$ . .	—	7.46
	23	39	34.05		9	7.21

In this case the hourly differences interpolated to half the interval, or $5^h.27$ after noon, have been used. The equation of time is here subtractive from mean time. Its reduction could have been found by Table 12 of BOWDITCH's *Navigator*.

2.—If the sidereal time is required for the same date and time, we have—

	h	m	s
March 15, sidereal time (at Greenwich mean noon) . . .	23	28	43.05
Reduction for $10^h\ 31^m\ 50^s$ from Table III, or $9^s.8565 \times 10.5305$.	+	1	43.79
Add the local astronomical mean time	3	10	30.00
The required sidereal time is (rejecting 24^h)	2	40	56.84

The reduction $1^m\ 43^s.79$ could have been found in Table III corresponding to the Greenwich mean time $10^h\ 31^m\ 50^s$, or by Table 9 of BOWDITCH's *Navigator*.

3.—On 1906, March 15, P. M., at a place whose longitude is 100° 10′ W., suppose the sidereal time to be $1^h\ 0^m\ 52^s.93$, and that the corresponding mean time is required.

The astronomical day is March 15; the longitude in time, $+ 6^h\ 40^m\ 40^s$, or $+ 6^h.678$.

		h	m	s
March 15, sidereal time (at Greenwich mean noon)		23	28	43.05
Reduction for $6^h\ 40^m\ 40^s$ from Table III, or $9^s.8565 \times 6.678$ . . .		+	1	5.82
The sidereal time of local mean noon		23	29	48.87
The given sidereal time ($+ 24^h$, if necessary for the following subtraction) .		25	0	52.93
Subtracting the first from the second gives the sidereal interval from noon .		1	31	$4.06 = 1^h.5178$
Reduction for $1^h\ 31^m\ 4^s.06$ from Table II, or $-9^s.8296 \times 1.5178$ . .		—	0	14.92
The required astronomical mean time is . . .	March 15,	1	30	49.14

Page III contains, for Greenwich mean noon of each day, *The Sun's True Longitude* and *Latitude*, and the *Logarithm of the Radius Vector of the Earth*. The longitudes of the Sun are the true geometric longitudes, not corrected for aberration. They are given in two columns, headed respectively λ and λ'; λ representing the Sun's longitude counted from the true equinox of the date; and λ', the same co-ordinate counted from the mean equinox of the beginning of the Besselian fictitious year. The latitude is referred to the mean ecliptic of the date. Columns of hourly differences are given to facilitate finding the Sun's longitude, or the logarithm of the radius vector, for any hour from noon.

The last column on page III contains the *Mean Time of Sidereal Noon;* that is, the number of hours, minutes, and seconds after Greenwich mean noon when the vernal equinox passes the meridian of Greenwich. It may be reduced to any meridian, or to any Greenwich sidereal time, by using the hourly difference, $-9^s.8296$, to effect the necessary interpolation. The reduction, however, can be taken directly from Table II for reducing intervals of sidereal time to mean solar time, or from Table 8 of Bowditch's *Navigator*.

This column may be used in converting sidereal time to mean time, instead of that on page II. As an illustration, let us take Example 3, above.

It is seen in advance that the sum of the mean time of sidereal noon and the given sidereal time is less than 24 hours. Were it more than 24 hours, the mean time of sidereal noon should be taken out for March 14, that is, the preceding astronomical day.

	h	m	s	
March 15, the mean time of Greenwich sidereal noon is . .	0	31	11.82	
Reduction for longitude from Table II, or $-9^s.8296 \times 6.678$ . .	—	1	5.64	
The mean time of local sidereal noon	0	30	6.18	
Add the given sidereal time	1	0	52.93	$= 1^h.0147$
The sum is	1	30	59.11	
Reduction for $1^h\ 0^m\ 52^s.93$ from Table II, or $-9^s.8296 \times 1.0147$.		—	9.97	
The required astronomical mean time . . March 15,	1	30	49.14	

Page IV contains *The Moon's Semidiameter* and Equatorial *Horizontal Parallax*, for each mean noon and midnight at Greenwich. Columns adjoining those of the horizontal parallax give the change of that quantity in one hour, by means of which it can be reduced to any other Greenwich mean time, in the same way as the Sun's declination and the equation of time in the preceding examples. The sign plus or minus is prefixed to the hourly differences, according as the horizontal parallax is increasing or decreasing.

The reduction of the Moon's semidiameter may be readily found by multiplying the reduction of the horizontal parallax by 0.273, or by simply computing the proportional part.

If, for example, the semidiameter of the Moon is to be taken out for 1906, December 10, 9^h, P. M., Greenwich mean time, we see that the difference of the semidiameters at noon and midnight of December 10 is $7''.8$; then,

$$12^h : 9^h = 7''.8 : 5''.8,$$

which is the correction to be added to the semidiameter at noon, because the semidiameter is increasing. The Moon's semidiameter for December 10, 9^h, is therefore $15'\ 57''.9$.

The Moon's semidiameter and horizontal parallax are required for all observations of the Moon. When great precision is needed, the hourly differences should be interpolated for half the interval of Greenwich time from noon or midnight, and the horizontal parallax should be corrected for the latitude of the place of observation.

The *Mean Time of the Moon's Upper Transit at Greenwich* and the *Age of the Moon* are also contained on page IV. The time of transit is given to tenths of a minute, and is accompanied by a column of differences for one hour of longitude, by means of which the local time of the Moon's meridian transit may be computed for any other place whose longitude is known. Table 11 of Bowditch's *Navigator* furnishes the necessary reduction by simple inspection. The age of the Moon, or the time elapsed since the preceding new Moon, is given to tenths of a day.

Pages V–XII contain *The Moon's Right Ascension* and *Declination* for each day and hour of Greenwich mean time. They are accompanied by columns of differences for one minute, which are also given at each hour. The Greenwich mean time, which is required for taking out these quantities, may either be taken from a well-regulated chronometer, or may be obtained by applying the longitude, converted into time, to the local mean time of the observer. The right ascension or declination is taken out for the given day and hour of

Greenwich mean time; the *Diff. for 1 Minute* is multiplied by the minutes and parts of a minute of the Greenwich time, and the product is added to or subtracted from the quantity, according as the latter is increasing or decreasing.

Thus, suppose the Moon's right ascension and declination are required for 1906, June 20, 10^h 10^m 30^s, astronomical mean time at Greenwich:—

Right Ascension.			*Declination.*
	h m s		° ′ ″
June 20, 10^h . . .	5 5 31.86	. . . . .	N. 18 36 40.3
Diff. 2.0774 × 10.5 . .	+ 21.81	+ 4.302 × 10.5	+ 45.2
June 20, 10^h 10^m 30^s . .	5 5 53.67	. . . . .	N. 18 37 25.5

For the sake of precision, the differences here employed have been interpolated for $5^m.2 = 0^h.09$.

Page XII contains also the *Phases of the Moon* and the dates of the *Moon's Perigee and Apogee*, or least and greatest distances from the Earth.

Pages XIII–XVIII contain the *Lunar Distances*, or the angular distances of the center of the Moon from the center of the Sun, from the centers of the four brighter planets, and from certain fixed stars, as they would appear to an observer at the center of the Earth. They are given for every third hour of Greenwich mean time, and as the reckoning begins at noon, the dates are astronomical. All the distances which can be observed on the same day are grouped together under that date, and the columns are read from left to right, across both pages of the same opening. The letter W. or E. is affixed to the name of the Sun, planet, or star, to indicate whether it is on the west or east side of the Moon.

An observer on the Earth's surface by measuring a lunar distance, correcting it for errors of his instrument and for the semidiameters of the objects, and clearing it from the effects of refraction and parallax, finds the true or geocentric distance; that is, the distance as it would have appeared from the center of the Earth at the moment of observation. By comparing this distance with the corresponding distances given in the Ephemeris, the Greenwich mean time of the observation can be derived.

To lessen the labor of computation, the Ephemeris contains, between every two successive distances, the logarithm of the seconds of time in which the distance changes one second of arc; or, as it is usually called, the *Proportional Logarithm of the Difference.* It is given for the middle instant of the two hours between which it is placed.

For computing the Greenwich time corresponding to a given lunar distance we have the following rule:

Find in the Almanac the two distances between which the true distance falls; take out the nearer of these, the hours of Greenwich time over it, and the P. L. of Diff. between them.

Find the difference between the true distance and the distance taken from the Almanac; and from the proportional logarithm of this difference, as found in Table 45 of Bowditch's *Navigator, subtract the P. L. of Diff. taken from the Almanac.*

The result will be the proportional logarithm of an interval of time to be added to the hours of Greenwich time, taken from the Almanac, when the earlier Almanac distance is used; or to be subtracted from the hours of Greenwich time, when the later Almanac distance is used.

Another method is, to add the common logarithm of the difference in seconds between the true and the Almanac distances to the P. L. of Diff. of the Almanac; and then the sum will be the common logarithm of the correction to be applied to the hours of Greenwich time. Table 34 of Bowditch's *Navigator* saves the operation of reducing degrees (or hours) and minutes to seconds, and the reverse.

As the P. L. of Diff. in the Ephemeris varies continually, the Greenwich time found by the methods just described may not be sufficiently exact. To correct it for such variation, or second difference, take the difference between the P. L. of Diff. used and the one which follows it in the Ephemeris (or, more strictly, half the difference of the preceding and following ones). With this difference, and the first correction of the Greenwich time already found, enter Table I, appended to this volume, and take out the corresponding seconds. which are to be added to the approximate Greenwich time when the Prop. Logs. in the Ephemeris are decreasing; or subtracted when they are increasing.

Thus the Greenwich mean time of an observation can be ascertained, and if the observer has noted the time of observation by a chronometer, the difference between this chronometer time and the Greenwich mean time will be the error of the chronometer on Greenwich time as found from the lunar distance. In that way lunar distances can be used as a check upon the chronometer, and by a series of them carefully observed on both sides of the Moon, the chronometer error may generally be determined within 20 or 30 seconds.

If the observer has found the local mean time of observation from the observed altitude of one of the bodies, or by a watch regulated to that time by recent observations and corrected for change of longitude in the interval, the difference of this local time and the Greenwich time found from the lunar distance will be his longitude. A longitude derived by this method should always be considered as uncertain by 5′ or more.

As an example of finding the Greenwich mean time from a lunar distance, suppose that in 1906, September 26, the corrected distance of the Moon's center from Fomalhaut is 42° 12′—

	° ′ ″		
Corrected distance	42 12 0		
Distance in Ephemeris Sept. 26	42 39 3	P. L.	0.3018
Difference	0 27 3	P. L.	0.8231
		P. L.	0.5213
	h m s		
Time from Midnight (*after*)	0 54 12		
Corr. for 2d Diff., Table I	— 13		
Greenwich mean time Sept. 26	0 53 59		

By a table of common logarithms, or a table of logarithms of small arcs, the reduction of the Greenwich time would be found thus:

From Ephemeris,	P. L.	0.3018
Diff. of distances, 27′ 3″ = 1623″	log	3.2103
Red. of Greenwich time, 3252ˢ = 0ʰ 54ᵐ 12ˢ	log	3.5121

The result is the same as by the previous method.

Pages 218–249 contain the geocentric ephemerides of the seven major planets. The places given are apparent positions; that is, they are referred to the equator and true equinox of the date, and are corrected for aberration. All the data except meridian passage are given for the instant of Greenwich mean noon. The column *Meridian Passage* shows the hour, minute, and tenth of that passage of the planet over the meridian of Greenwich which occurs next after the noon of the date.

The right ascension and declination of a planet are required whenever it is observed for time, latitude, or azimuth. The mode of reducing the ephemeris positions of planets to other instants of Greenwich mean time is the same as that given for the Sun on pages 559–561. The local mean time of meridian passage of any planet, at any place, can be found by dividing the proper daily difference of the ephemeris times by 24, multiplying the quotient by the longitude of the place expressed in hours and fractions, and applying the product with its proper sign to the time of Greenwich passage.

Pages 250–271 contain the heliocentric co-ordinates of the seven major planets, and the logarithms of their distances from the Earth. The heliocentric longitude is reckoned, not from the true equinox, as in the preceding ephemerides, but from the mean equinox of the date. It is, therefore, necessary to apply nutation, if the longitude from the true equinox is required. The daily motion is given for the instant of Greenwich mean noon. The column *Reduction to Orbit* contains the correction to be applied to the heliocentric longitude in order to obtain the longitude counted along the orbit of the planet. The latter is equal to the distance from the mean equinox to the node, plus the distance from the node to the planet. The heliocentric latitude is counted from the mean ecliptic of the date. The *Logarithm of Radius Vector* is the logarithm of the distance of the center of the planet from that of the Sun, at the Greenwich mean noon whose date is given in the first column. The last two columns give, respectively, the logarithm of the true distance of the center of the planet from that of the Earth, for the Greenwich noon indicated on the left-hand side of the page, and for the time which is midway between that date and the date next below it. In the case of Mercury, this intermediate date is mean midnight of the same day; in the case of Venus and Mars, it is the mean noon of the day immediately following; in the case of Jupiter and Saturn, it is mean noon of the second day following; and in the case of Uranus and Neptune, mean noon of the fourth day following.

Pages 272–279 contain the rectangular co-ordinates of the center of the Sun, referred to the center of the Earth as the origin, and to the true equator and equinox of each date as the plane and point of reference. Each co-ordinate is given both for Greenwich mean noon, and for Greenwich mean midnight of the same day. The columns *Reduc. to Mean Eq'x of Jan.* 0 give the corrections to be applied to the co-ordinates for noon in order to obtain the corresponding co-ordinates referred to the mean equator and the mean equinox of the beginning of the Besselian fictitious year.

Pages 280–283 give for every Greenwich mean noon and midnight the apparent geocentric longitude and latitude of the Moon referred to the true ecliptic and equinox of the date.

Page 284 contains the position of the Moon's equator, the longitude of the Moon's perigee, the mean longitude of the Moon's ascending node, and the Moon's mean longitude.

Page 285 contains the elements of the libration of the Moon, and the Sun's aberration and horizontal parallax. The epochs of greatest libration of the Moon, together with the formulæ for finding the libration in longitude and latitude, are given on page 440. *The Sun's Aberration* is the quantity which is to be applied to the true longitude of the Sun in order to obtain its apparent longitude. The correction being negative shows that the apparent longitude as affected by aberration is always less than the true longitude. The *Sun's Equatorial Horizontal Parallax,* given in the last column, is the angle subtended by the equatorial radius of the Earth, as seen from the center of the Sun.

Pages 286–288 give data for precession and the obliquity of the ecliptic, together with all sensible terms arising from the motions of the equator and ecliptic. To show clearly the relations of these quantities, let

λ = the longitude of any body referred to the true equinox of the date.

λ' = the longitude of the same body referred to the mean equinox of the beginning of the Besselian fictitious year.

ψ_1 = the adopted value of the general precession.

$\delta'\psi$ = the principal term of the nutation in longitude; or, in other words, the correction to be applied to the longitude of a body referred to the mean equinox of date, in order to obtain that longitude as referred to the true equinox, exclusive of short period terms. When the correction is positive, the longitudes referred to the true equinox are greater than those referred to the mean equinox; while the contrary is the case when the correction has a negative sign.

$\delta''\psi$ = the short period terms of nutation in longitude, given on pages 287–288.

ω = the true or apparent obliquity of the ecliptic at the date.

ω' = the mean obliquity of the ecliptic at the beginning of the Besselian fictitious year.

$\delta'\omega$ = the principal term of the nutation of the obliquity of the ecliptic; or, in other words, the correction to be applied to the mean obliquity of date in order to find the true or apparent obliquity, exclusive of short period terms. This quantity is tabulated on page 286, and is positive or negative according as the true obliquity is greater or less than the mean obliquity.

$\delta''\omega$ = the short period terms of nutation in obliquity, given on pages 287–288.

τ = the fraction of a year intervening between the instant when the Sun's mean longitude was 280° and the date for which λ or ω is required.

Then

$$\lambda = \lambda' + \tau\,\psi_1 + \delta'\psi + \delta''\psi$$
$$\omega = \omega' - 0''.464\,\tau + \delta'\omega + \delta''\omega$$

Page 286 contains, for each fifth Greenwich mean noon throughout the year, certain quantities which may be described in terms of the above notation as follows: The *Precession in Longitude from 1906.0* = $\tau\,\psi_1$; the *Nutation in Longitude* = $\delta'\psi$; the *Nutation in Right Ascension* = $(\delta'\psi)\cos\omega'$; the *Nutation in Obliquity* = $\delta'\omega$, and the *Obliquity of the Ecliptic* = $\omega - \delta''\omega$, which is the true inclination of the Earth's equator to the ecliptic, exclusive of the terms depending on the Moon's longitude.

Pages 287–288 contain the values of $\delta''\psi$ and $\delta''\omega$, which are not included in the values of nutation given on page 286.

PART II—THE EPHEMERIS FOR THE MERIDIAN OF WASHINGTON.

Page 290 contains formulæ for reducing the positions of fixed stars, including expressions for the Besselian star-numbers and star-constants, and for the independent star-numbers; the whole based upon the constants of STRUVE and PETERS, and expressed in the notation of BESSEL.

Pages 291–294 contain the logarithms of the *Besselian Star-Numbers, A, B, C, D,* for each Washington mean midnight, with the values of *E* appended at the bottoms of the pages. These numbers serve to reduce the mean place of a star at the beginning of the Besselian fictitious year to its apparent place at the dates for which the numbers are given, and in ordinary cases four-figure logarithms suffice; but where extreme accuracy is desired the logarithms of *A*, *C*, and *D* are sometimes needed to five places of decimals. If used in accordance with the English and French notation, the pair of quantities *A* and *B* must be interchanged with the pair *C* and *D;* that is, *A* must be interchanged with *C*, and *B* with *D*. Along with the solar day, the first column contains the sidereal hour of Washington mean midnight for certain dates, and by interpolation among them it is easy to find the sidereal time for which any set of quantities is given.

The following is an example of the reduction of a star to apparent place by the Besselian star-numbers:—

Computation of the apparent place of 42 Cygni for 1906, July 30, for the upper transit at Washington.

log a	0.3594	log b	8.4612	log c	8.6905	log d	8.8222 *n*
log A	9.5303	log B	0.8040	log C	1.0534	log D	1.2125 *n*
log a'	1.0759	log b'	9.9055	log c'	9.9163	log d'	9.5444
log $A\,a$	9.8897	log $B\,b$	9.2652	log $C\,c$	9.7439	log $D\,d$	0.0347
log $A\,a'$	0.6062	log $B\,b'$	0.7095	log $C\,c'$	0.9697	log $D\,d'$	0.7569 *n*

		h m s		° ′ ″
Mean Place, 1906.0,	α_0 =	20 25 45.277	δ_0 =	+ 36 8 26.41
	$A\,a$ =	+ 0.776	$A\,a'$ =	+ 4.04
	$B\,b$ =	+ 0.184	$B\,b'$ =	+ 5.12
	$C\,c$ =	+ 0.554	$C\,c'$ =	+ 9.33
	$D\,d$ =	+ 1.083	$D\,d'$ =	− 5.71
	E =	− 0.002	$\tau\,\mu'$ =	0.00
	$\tau\,\mu$ =	0.000		
Apparent Place, July 30,	α =	20 25 47.872	δ =	+ 36 8 39.19

Pages 295–302 contain the *Independent Star-Numbers*, which can frequently be advantageously used instead of the *Besselian Star-Numbers*. These quantities are connected

with those of Bessel by the relations given on page 290, which also contains the formulæ and precepts for the application of both systems of numbers. In order to use the Besselian numbers, it is necessary to have the values of the star-constants, a, b, c, d, a', b', c', d', while the independent star-numbers render it possible to determine the apparent place of a star without computing these star-constants. Four-figure logarithms usually suffice, but where extreme accuracy is desired the logarithms of g and h are needed to five places of decimals, and G and H are needed to one-tenth of a minute of arc. The column τ gives the fraction of a year, counted from the beginning of the Besselian fictitious year to each date.

The following is an example of the reduction of a star to apparent place by the independent star-numbers:—

Computation of the apparent place of 42 Cygni for 1906, July 30, for the upper transit at Washington.

	° ′		° ′		
$\alpha_0 =$	306 26.4	$\delta_0 =$	+ 36 8.4		
$G =$	43 7.8	$G + \alpha_0 =$	349 34.2		
$H =$	145 16.0	$H + \alpha_0 =$	91 42.3		h m s
$\log \frac{1}{15}$	8.8239	$\log \frac{1}{15}$	8.8239	$\alpha_0 =$	20 25 45.277
$\log g$	0.9692	$\log h$	1.2977	$f =$	+ 1.040
$\sin (G + \alpha_0)$	9.2578 n	$\sin (H + \alpha_0)$	9.9998	$(g) =$	− 0.082
$\tan \delta$	9.8635	$\sec \delta$	0.0928	$(h) =$	+ 1.638
$\log (g)$	8.9144 n	$\log (h)$	0.2142	$\tau \mu =$	0.000
				$\alpha =$	20 25 47.873
					° ′ ″
$\log g$	0.9692	$\log h$	1.2977	$\delta_0 =$	+ 36 8 26.41
$\cos (G + \alpha_0)$	9.9928	$\cos (H + \alpha_0)$	8.4740 n	$(g') =$	+ 9.16
$\log (g')$	0.9620	$\sin \delta$	9.7707	$(h') =$	− 0.35
		$\log (h')$	9.5424 n	$(i) =$	+ 3.96
				$\tau \mu^1 =$	0.00
				$\delta =$	+ 36 8 39.18
$\log i$	0.6907				
$\cos \delta$	9.9072				
$\log (i)$	0.5979				

Page 303 contains for every tenth sidereal day the *Besselian* and *Independent Star-Numbers*, exclusive of all short period terms. They are useful in computing ephemerides of stars, similar to those on pages 324–399, for which constants containing short period terms should not be employed.

Pages 304–311 contain the mean places of three hundred and eighty-three stars, for the beginning of the Besselian fictitious year 1906, or, in other words, for the moment when the Sun's mean longitude is 280°. The annual variations are to be considered as the differential coefficients of each co-ordinate with respect to the time at the beginning of the year.

Pages 312–323 contain the apparent positions of the five circumpolar stars, α, δ and λ Ursæ Minoris, 51 Cephei, and σ Octantis, for every upper transit at Washington. The mean solar time of transit is given in the column *Mean Solar Date*, in order that each transit above and below the pole may be readily identified. Suppose, for example, that the transit of Polaris below the pole on January 26 is to be found, and we wish to know whether it precedes or follows the upper transit of the same date. On page 312, we find that the upper transit occurs January 26.2; the lower transit, therefore, occurs January 26.7. But the lower transit following that of July 1 (page 318) does not take place until July 2.3. Hence, the lower transit of July 1 precedes the upper one of the same date. A transit occurring very nearly at noon may also be identified without a computation to ascertain the actual mean date, by simply noting the tenth of a day in the column *Mean Solar Date*.

Pages 324–399 contain, for every tenth upper transit at Washington, the apparent places of 378 stars, being all those given in the list of mean places, except the five circumpolars. The mean solar date in the left-hand column of each page gives the day and tenth of the transit, so that intermediate transits may be readily identified; and to facilitate interpolation, the differences of each co-ordinate are given for every ten days.

Pages 400–407 contain the apparent right ascension and declination of the Sun, both for Washington mean and apparent noon, and the hourly motion of the Sun in these co-ordinates; the equation of time, the semidiameter of the Sun, and the sidereal time of semidiameter passing the meridian, for Washington apparent noon; and lastly, the sidereal time of mean noon. The hours and minutes of right ascension and the degrees and minutes of declination are always made the same for both mean and apparent noon. In cases where they really differ, the minute which would have been numerically larger is diminished by one, and the seconds increased by sixty, so that the sum of the two remains correct. The hourly motions in right ascension and declination are given for the columns headed *Mean Noon*, but may be regarded as having the same values for apparent noon.

The *Equation of Time for Apparent Noon* is the correction to be applied to apparent time in order to obtain mean time. It is, therefore, mean time minus apparent time. Each number as given is the mean time of transit of the Sun's center over the meridian of Washington, counted from the nearest noon. The use of all the quantities is substantially the same as in the *Ephemeris for the Meridian of Greenwich*.

Pages 408–415 contain the right ascension, declination, semidiameter, and parallax of the Moon, at the moment of transit over the meridian of Washington. The mean time given in the second column is that of transit of the Moon's center over this meridian. The differences for one hour of longitude are the amounts by which the local mean times of transit over a meridian one hour west of Washington would exceed those given in the column *Mean Time of Transit*, supposing the rate of change to be uniform and equal to what it is at the instant of transit over the meridian of Washington. The next four columns need no especial explanation, except that the differences for one hour of longitude are computed as if the motion of the Moon in right ascension were uniform, or, in other words, they are differential coefficients corresponding to the instants of Washington transit. By means of them, when second differences are taken into account, the position of the Moon can be computed with great exactness for the moment of transit over any meridian not more than one hour distant from Washington. To obtain the same accuracy for more distant meridians, we may proceed as follows: Let F represent either the *Mean Time of Transit*, the *Right Ascension of Center*, or the *Geocentric Declination of Center*, and let D represent the corresponding *Difference for One Hour of Longitude*. Write down three successive values of F, together with the corresponding values of D, and difference the latter as in the following scheme; where the middle values, F_0 and D_0, belong to the Washington culmination from which is to be derived the value of F for the culmination on the meridian whose longitude is λ :—

Function.	Diff. for 1 Hour of Longitude.	Δ'	Δ''
F_{-1}	D_{-1}		
		a'	
F_0	D_0		b
		a''	
F_{+1}	D_{+1}		

Then, for the culmination at the meridian λ

$$F_\lambda = F_0 + \lambda D_0 + \frac{\lambda^2}{96}(a'+a'') + \frac{\lambda^3 b}{3456}$$

where λ must be expressed in hours and decimals of an hour, and is to be taken plus or minus according as the longitude from Washington is west or east.

The columns of *Sidereal Time of Semidiameter passing Meridian*, *Geocentric Semidiameter* and *Equatorial Horizontal Parallax*, do not seem to need any explanation, except that they all refer to the moment of transit. The column *Bright Limbs* is given to indicate to the observer which limbs are illuminated. When one limb is full and the terminator is within 0″.05 of the opposite limb, both can be well observed, and in such cases both are indicated.

Pages 416–431 contain the geocentric apparent right ascensions and declinations of six major planets, together with their horizontal parallaxes, semidiameters, and sidereal times of semidiameters passing the meridian, for the moments of all transits which it is usually desirable to observe over the meridian of Washington. The columns following the dates give the Washington mean times of these transits.

PART III—PHENOMENA.

This part gives the dates of the principal astronomical phenomena of the year, expressed in Washington mean time, except in the case of the eclipses and the data for the rings of Saturn, which are expressed in Greenwich mean time.

Pages 434–439 contain all necessary data respecting the solar and lunar eclipses which occur during the year.

The eclipse elements are given for the moment of conjunction of the Sun and Moon in right ascension, but the subsequent tables and results are computed from the exact positions of these bodies at the several instants referred to. The times and angles designated as the circumstances of a lunar eclipse remain the same throughout all parts of the Earth, and require no explanation beyond a mere statement of the fact that in computing them the geometrical diameter of the Earth's shadow has been augmented in the proportion of 51 : 50. The principal circumstances of each total and annular solar eclipse are stated on five lines, as follows:—

The line entitled "Eclipse begins" gives the Greenwich mean time at which the Moon's penumbra first touches the Earth, together with the latitude and longitude of the point of contact.

The line entitled "Central eclipse begins" gives the time when the axis of the Moon's shadow first touches the Earth, and the latitude and longitude of the point of contact follow.

The line entitled "Central eclipse at noon" gives the time when the axes of the Earth and of the shadow cone lie in the same plane. The latitude and longitude of the point where the axis of the shadow cone then cuts the Earth's surface follow, and there the eclipse will be central and the Sun will be exactly on the meridian.

The lines entitled "Central eclipse ends" and "Eclipse ends" give respectively the times when and the localities where these events occur, the phenomena being the converse of those denoted by the similar phrases for the beginning.

In the case of partial solar eclipses the axis of the Moon's shadow does not come into contact with the Earth, and the three lines entitled, respectively, "Central eclipse begins," "Central eclipse at noon," and "Central eclipse ends," are replaced by a single line entitled "Greatest eclipse," whereon are given the time when and the latitude and longitude where the eclipse attains its greatest magnitude. The latter phenomenon necessarily occurs with the Sun in the horizon.

Maps of the Eclipses.—The regions in which each eclipse is visible are shown upon the map relating to it, from which may be taken approximately, for any place, both the times of the beginning and ending of the eclipse and its magnitude. The dotted curves show the outline of the shadow for each hour of Greenwich mean time, and therefore pass through all places where the eclipse begins or ends at the hour indicated. To find the instant of beginning at any place, we determine by inspection between what pair of these curved lines the place is situated. The eclipse will then begin between the corresponding hours of Greenwich mean time; and the fraction of the hour may be determined by dividing the hour in the same proportion as the space representing it on the map is divided by the place in question. This division may be made a little more exact by allowing for the changes in the spaces as indicated by their varying width. The Greenwich mean time thus found must be reduced to local mean time by applying the longitude.

As an example, suppose we wish to find the times at which the eclipse of 1906, February 22, begins and ends at the place whose latitude is 67°.5 S. and whose longitude is 110° E.

For the beginning we compare the distance of the place from the curves of 18^h and 19^h, and find it to correspond to about 54 minutes from the former, thus giving for the approximate time of beginning $18^h\ 54^m$; for the end we compare the distance of the place from the curves of 20^h and 21^h, and find it to be about 38 minutes from the former, thus giving for the approximate time of ending $20^h\ 38^m$, and both of these results are probably correct to within 3 or 4 minutes. Changing to local mean time, we shall have—

	Beginning. d h m	*Ending.* d h m
Greenwich mean time	Feb. 22 18 54	22 20 38
Longitude east	7 20	7 20
Local mean time	Feb. 23 2 14	23 3 58

In the case of total and annular eclipses, a fair estimate of the magnitude of the eclipse at any place may be obtained from the position thereof relatively to the central line and to the limit. On the central line, the eclipse is annular or total, while between the central line and the limit the maximum magnitude of the eclipse is given by the quotient of the distance of the place from the limit divided by the distance of the central line from the limit; the measurements being made upon a line drawn through the place, perpendicularly to the central line.

More Accurate Computations.—A more accurate determination of the phases, as visible at any point of the Earth's surface, may be obtained from the Besselian elements which are given for every 10 minutes of Greenwich mean time. Their geometric signification is as follows:—

Let us imagine a plane passing through the center of the Earth, perpendicular to the right line joining the centers of the Sun and Moon. This latter line is the axis of the Moon's shadow, and the plane is called the *fundamental plane* or plane of xy. We take the intersection of this plane with that of the Earth's equator as the axis of x, and the center of the Earth as the origin of co-ordinates. The axis of y is perpendicular to that of x, and directed toward the north; x and y are then the co-ordinates of the point in which the axis of the shadow intersects the fundamental plane, and they are here expressed in terms of the Earth's equatorial radius as unity. The angle d, of which the sine and cosine are both given, is the declination of that point of the celestial sphere toward which the axis of the shadow is directed; or, in other words, it is the declination of the center of the Sun as seen from the center of the Moon. The angle μ is the Greenwich hour angle of this same point of the celestial sphere.

The quantities l_1 and l_2 are the radii of the shadow cones upon the fundamental plane, l_1 corresponding to the penumbra, and l_2 to the umbra, or annulus. The notation is that of CHAUVENET'S *Spherical and Practical Astronomy*, in which l_2 is regarded as positive for an annular, and negative for a total eclipse.

The angles f_1 and f_2, the tangents of which are given, are the angles which the elements of the respective shadow cones make with the axis of the shadow; or, they are the semi-angles of the two cones.

In order to facilitate interpolation to any required moment, the logarithms of x', y', and μ', which are the changes of x, y, and μ, in one minute of time, are given at the bottom of the table.

The method of computing an eclipse from its Besselian elements is based on the fact that at the moments of beginning and ending the distance of the observer from the axis of the shadow or penumbra is equal to the radius of the latter at the point of observation. To find this distance and radius we proceed as follows:—

(1) The co-ordinates of the observer, ξ, η, and ζ, together with their variations in one minute, are computed for some assumed moment of Greenwich mean time, as near as practicable to the true time of the required phase.

(2) The co-ordinates x and y of the axis of the shadow, together with their variations in one minute, are taken for the same moment from the tables of elements.

(3) From (1) and (2) the position and motion of the observer relative to the axis of the shadow are found.

(4) The radius of the penumbra or umbra at a distance from the fundamental plane equal to that of the observer is also computed.

(5) Then, assuming the motions to be uniform, we determine the time required for the observer to be brought to a distance from the axis of the shadow equal to this radius.

The formulæ and directions for the several steps in the computation are as follows:—

(1) Find $\rho \cos \varphi'$ and $\rho \sin \varphi'$, which are the geocentric co-ordinates of the station referred to the Earth's equator, ρ being the distance from the center of the Earth, and φ' the geocentric latitude. These co-ordinates may be obtained from geodetic tables, or may be computed from the following table based on CLARKE'S spheroid of 1866, by the formulæ—

$$\rho \cos \varphi' = F \cos \varphi$$

$$\rho \sin \varphi' = \frac{\sin \varphi}{G}$$

φ being, as usual, the geographic latitude.

Table for Computing the Geocentric Co-ordinates of a Place.

φ	Log F.		Log G.	
0°	0.00000		0.00295	
5	0.00001	1	0.00294	1
10	0.00004	3	0.00291	3
15	0.00010	6	0.00285	6
20	0.00017	7	0.00278	7
25	0.00026	9	0.00269	9
30	0.00037	11	0.00258	11
35	0.00048	11	0.00247	11
40	0.00061	13	0.00234	13
45	0.00074	13	0.00221	13
50	0.00086	12	0.00209	12
55	0.00099	13	0.00196	13
60	0.00111	12	0.00184	12
65	0.00121	10	0.00174	10
70	0.00130	9	0.00165	9
75	0.00138	8	0.00157	8
80	0.00143	5	0.00152	5
85	0.00146	3	0.00149	3
90	0.00147	1	0.00147	2

For the assumed Greenwich mean time of computation, take from the table of elements the values of sin d, cos d, and μ. Then, with λ for the longitude west from Greenwich, the co-ordinates of the observer will be—

$$\xi = \rho \cos \varphi' \sin (\mu - \lambda)$$

$$\eta = \rho \sin \varphi' \cos d - \rho \cos \varphi' \sin d \cos (\mu - \lambda) = \eta_1 - \eta_2$$

$$\zeta = \rho \sin \varphi' \sin d + \rho \cos \varphi' \cos d \cos (\mu - \lambda) = \zeta_1 + \zeta_2$$

and their variations in one minute of mean time will be—

$$\xi' = [7.63992]\ \rho \cos \varphi' \cos (\mu - \lambda)$$

$$\eta' = [7.63992]\ \rho \cos \varphi' \sin d \sin (\mu - \lambda) = [7.63992]\ \xi \sin d$$

ζ' is not needed.

(2) For the same assumed moment of Greenwich mean time, take from the tables of elements the co-ordinates x and y of the axis of the shadow, together with their variations for one minute, which are equal to one-tenth of the differences of two consecutive numbers. These variations are represented by x' and y', and their logarithms are given beneath the tables of x and y.

(3) The distance m and position-angle M of the axis of the shadow relatively to the observer, and the relative motions, n and N, are computed by the formulæ—

$$m \sin M = x - \xi$$

$$m \cos M = y - \eta$$

$$n \sin N = x' - \xi'$$

$$n \cos N = y' - \eta'$$

(4) Both for the shadow and for the penumbra, the radius L at the distance ζ from the fundamental plane is computed by the formula—

$$L = l - \zeta \tan f$$

l and f being found from the table of elements, and ζ computed in (1).

(5) If the time chosen for computation is exactly that of the beginning or ending of the eclipse, we shall have—

$$m = L$$

But, as this condition will rarely be fulfilled on a first trial, a correction τ to the assumed time is computed thus: Find the angle ψ from the equation,

$$\sin \psi = \frac{m \sin (M - N)}{L}$$

There will be two values for this angle, of which one will be in the first and the other in the second quadrant when $\sin \psi$ is positive, and one in the third and the other in the fourth quadrant when $\sin \psi$ is negative; but simplicity will be gained by taking only that value of ψ for which $\cos \psi$ is positive. This value lies between the limits +90° and −90°. The correction τ to the assumed time of beginning or ending of the eclipse will then be found, in minutes, from—

$$\tau = -\frac{m \cos (M - N)}{n} \mp \frac{L \cos \psi}{n}$$

where the double sign is to be taken negative for the beginning and positive for the ending.

However, one such pair of values of τ can not give the times of both beginning and ending with accuracy. To attain that, we must commence the computation by assuming two times, one near the beginning, and the other near the ending of the eclipse; both of which may be derived from the chart with sufficient exactness. The computation for the first assumed time will give a small value of τ which, when applied to the assumed time, will give the beginning of the eclipse nearly correctly, and a large value which will give an inaccurate time of ending. Similarly the computation for the second assumed time will give a small and nearly correct value of τ, for finding the time of ending, and a large and inaccurate negative value for finding the time of beginning. We shall thus deduce two times of each phase, only one of which is to be regarded as approximately correct.

The more accurate times of beginning and ending may now be taken in place of those originally assumed, and the whole computation may be repeated, thus leading to a pair of values of τ, which should be very small and accurate. Such a repetition of the computation will in general be advisable, to guard against accidental numerical errors, but a second approximation may be obtained without it, by finding a corrected value of τ in accordance with the formulæ—

$$\delta\tau = \mp \frac{\tau\,(l' + [5.3100]\,\xi \cos d)}{n \cos \psi} - \frac{[4.9788]\,\tau^2}{n \cos \psi}\,[\xi \sin (N \mp \psi) - \eta_2 \cos (N \mp \psi)]$$

$$\tau_0 = \tau + \delta\tau$$

where the double signs are to be taken negative for the beginning of the eclipse and positive for the ending. l' is the variation of l for one minute of time, and its numerical value can be taken by inspection from the table of Besselian elements.

If the resulting values of τ_0 are not greater than fifteen minutes, the corrected times of contact thus obtained will be theoretically exact within less than a second, but the uncertainties of the solar and lunar tables are such that an unavoidable error of several seconds may exist in the prediction. To guard against numerical mistakes it is better, after making this final correction, to repeat the computations so far as to obtain new values of m and L for the corrected times. If these two quantities agree within a unit of the fourth place of decimals, the times employed are generally correct within a second of time. If they differ too widely, the computer must use his own judgment as to making further corrections and computations.

Position-angle of Point of Contact.—The position-angle P, of the point of contact, reckoned from the north point of the Sun's limb toward the east, is found by the formula—

$$P = N - \psi \pm 180^\circ \text{ for the beginning,}$$
$$P = N + \psi \qquad \text{for the ending,}$$

it being assumed that, in each case, the value of ψ is taken between the limits ± 90°.

Computation of the Solar Eclipse of 1906, August 19, for Port Townsend, Wash.

The position of Port Townsend is—

		°	′	″
Latitude,	$\varphi = +$	48	7	12
Longitude,	$\lambda = +$	122	45	0

and its geocentric co-ordinates are—

$$\rho \sin \varphi' = 9.86975$$
$$\rho \cos \varphi' = 9.82531$$

From the Eclipse Charts we find the approximate times of the phases to be—

	d	h	m	
Beginning August	19	13	51	Greenwich Mean Time.
Ending	19	14	31	

		Beginning.	Ending.
Greenwich Mean Time, T,	August 19	$13^h\ 51^m$	$14^h\ 31^m$
		° ′ ″	° ′ ″
	μ	206 52 15	216 52 23
	λ	122 45 0	122 45 0
	$\mu-\lambda$	84 7 15	94 7 23
	$\rho \cos \varphi'$	9.82531	9.82531
	$\sin (\mu-\lambda)$	9.99771	9.99887
	$\log \xi$	9.82302	9.82418
	ξ	+ 0.66530	+ 0.66708
	$\rho \sin \varphi'$	9.86975	9.86975
	$\cos d$	9.98905	9.98907
	$\log \eta_1$	9.85880	9.85882

Greenwich Mean Time, T, August 19	Beginning. $13^h\ 51^m$	Ending. $14^h\ 31^m$
η_1	+ 0.72243	+ 0.72247
$\rho \cos \varphi'$	9.82531	9.82531
$\sin d$	9.34583	9.34553
$\cos (\mu - \lambda)$	9.01043	8.85672 *n*
$\log \eta_2$	8.18157	8.02756 *n*
η_2	+ 0.01519	− 0.01066
$\eta = \eta_1 - \eta_2$	+ 0.70724	+ 0.73313
$\rho \sin \varphi' \sin d$	9.21558	9.21528
ζ_1	+ 0.16428	+ 0.16417
$\rho \cos \varphi' \cos d \cos (\mu - \lambda)$	8.82479	8.67110 *n*
ζ_2	+ 0.06680	− 0.04689
$\zeta = \zeta_1 + \zeta_2$	+ 0.23108	+ 0.11728
const. log	7.63992	7.63992
$\rho \cos \varphi' \cos (\mu - \lambda)$	8.83574	8.68203 *n*
$\log \xi'$	6.47566	6.32195 *n*
ξ'	+ 0.000299	− 0.000210
const. log	7.63992	7.63992
$\xi \sin d$	9.16885	9.16971
$\log \eta'$	6.80877	6.80963
η'	+ 0.000644	+ 0.000645
$x - \xi$	+ 0.00677	+ 0.35316
$y - \eta$	+ 0.53827	+ 0.42303
$x' - \xi'$	+ 0.008407	+ 0.008916
$y' - \eta'$	− 0.002877	− 0.002880
$m \sin M$	7.83059	9.54797
$m \cos M$	9.73100	9.62637
$\tan M$	8.09959	9.92160
M	0° 43′ 14″	39° 51′ 23″
$\cos M$	9.99997	9.88517
$\log m$	9.73103	9.74120
$n \sin N$	7.92464	7.95017
$n \cos N$	7.45894 *n*	7.45939 *n*
$\tan N$	0.46570 *n*	0.49078 *n*
N	108° 53′ 30″	107° 54′ 4″
$\sin N$	9.97595	9.97845
$\log n$	7.94869	7.97172
$\tan f$	7.66479	7.66480
$\log \zeta$	9.36376	9.06923
	7.02855	6.73403
$\zeta \tan f$	+ 0.00107	+ 0.00054
l	+ 0.55068	+ 0.55059
L	+ 0.54961	+ 0.55005
$M - N$	251° 49′ 44″	291° 57′ 19″
$\sin (M - N)$	9.97778 *n*	9.96730 *n*
$\log m$	9.73103	9.74120
colog L	0.25994	0.25960
$\sin \psi$	9.96875 *n*	9.96810 *n*

		Beginning.	Ending.
Greenwich Mean Time, T,	August 19	$13^h\ 51^m$	$14^h\ 31^m$
	ψ	$-68°\ 31'\ 24''$	$-68°\ 18'\ 24''$
	$\log \frac{m}{n}$	1.78234	1.76948
	$\cos (M - N)$	9.49396 *n*	9.57274
		1.27630 *n*	1.34222
	$-\frac{m}{n} \cos (M - N)$	+ 18.893	− 21.990
	$\log L$	9.74006	9.74040
	$\cos \psi$	9.56362	9.56778
	colog n	2.05131	2.02828
		1.35499	1.33646
	$\mp \frac{L \cos \psi}{n}$	− 22.646	+ 21.700
	τ	m − 3.753	m − 0.290
	T	h m 13 51	h m 14 31
		13 47.247	14 30.710

Since the value of τ for the beginning is rather large, we compute the correction $\delta\tau$ for this phase as follows:

	Ending.
const. log	5.3100
$\log \xi$	9.8230
$\cos d$	9.9891
	5.1221
number	+ 0.0000132
l'	− 0.0000018
sum	+ 0.0000114
log (sum)	5.0569
$\log \tau$	0.5744 *n*
colog n	2.0513
$\sec \psi$	0.4364
	8.1190 *n*
(1)	+ 0.0132
$N - \psi$	177° 25′
$\sin (N - \psi)$	8.6539
$\log \xi$	9.8230
$\log \xi \sin (N - \psi)$	8.4769

	Ending.
$\cos (N - \psi)$	9.9996 *n*
$\log \eta_2$	8.1816
$\log \eta_2 \cos (N - \psi)$	8.1812 *n*
$\xi \sin (N - \psi)$	+ 0.0300
$\eta_2 \cos (N - \psi)$	− 0.0152
diff.	+ 0.0452
log (diff.)	8.6551
const. log	4.9788 *n*
$\log \tau^2$	1.1488
colog ($n \cos \psi$)	2.4877
	7.2704 *n*
(2)	− 0.0019
$(1) + (2) = \delta\tau$	m + 0.0113
τ	− 3.753
τ_0	− 3.742

The corrected time of beginning is, therefore,

$$t_0 = \text{August } 19^d\ 13^h\ 47^m.258,$$

Whence we find—

		Beginning. d h m	Ending. d h m
Greenwich Mean Time,	August	19 13 47.258	19 14 30.710
λ		8 11.0	8 11.0
Local Mean Time,		19 5 36.258	19 6 19.710

Therefore we have—

$$\left.\begin{array}{lllll} \text{Beginning of the eclipse, August} & 19^d & 5^h & 36^m & 15^s.5 \\ \text{End of the eclipse,} \quad `` & 19 & 6 & 19 & 42.6 \end{array}\right\} \text{Local Mean Time.}$$

	Beginning. ° ′	Ending. ° ′
$N \mp \psi$	177 24.9	39 35.7
constant	+180 0.0	0 0.0
Angle of position: P	357 24.9	39 35.7

from the north point of the Sun's disk toward the east for direct image.

Moon's Phases, Libration, etc.—Page 440 gives the Washington mean times of the Moon's phases, apogee, perigee and greatest libration, together with the formulæ for finding the libration in longitude and latitude whenever required.

Mean Places of Stars Occulted During the Year.—Pages 441–444 contain, for the year 1906, the adopted mean places and annual proper motions, of such stars as will be occulted by the Moon, but are not included in the list given on pages 304–311. These additional stars are necessary in order to provide each month a sufficient number brighter than the 6.55 magnitude which will be occulted at a distance of more than 25° from the Sun.

Elements of Occultations.—Pages 445–480 give the elements for the prediction of the times of occultations of stars and planets by the Moon during the current year. The system of co-ordinates employed is similar to that already described for eclipses, the fundamental plane passing through the center of the Earth, and being taken perpendicular to the line joining the star and the center of the Moon, but the cone circumscribing the Moon and star is regarded as a cylinder which intercepts the fundamental plane in a circle having the same linear diameter as the Moon.

In the columns referring to the star, those headed *Red'ns from* 1906.0 give the quantities necessary to reduce the mean place of the star at the beginning of 1906 to its apparent place at the time of occultation. These reductions are sufficiently accurate to be definitive.

Under the general head, *At Conjunction in R. A.*, are five columns giving certain quantities for the moment of geocentric conjunction of the Moon and star in right ascension, as follows:—

The *Washington Mean Time* is the moment, T, at which the two bodies are in geocentric conjunction in right ascension. At that moment the co-ordinate x of the axis of the cylinder on the fundamental plane has the value zero. The column *Hour Angle, H,* gives the common geocentric hour angle of the Moon and star at the same moment, expressed in sidereal time and counted from the meridian of Washington—positive toward the west and negative toward the east. Column Y gives the co-ordinate y of the axis of the cylinder upon the fundamental plane at the same moment. Columns x' and y' give the variations of x and y in one hour of mean time. The linear unit in these columns is the Earth's equatorial radius. The limiting parallels, north and south, show the extreme limits of latitude within which the occultation will be visible.

By the aid of these elements, the Washington mean time of immersion and emersion of a star relatively to the limb of the Moon may be computed for any part of the Earth by a method nearly the same as that already explained for computing eclipses, but somewhat more simple.

Prediction of Occultations for a Given Place.—When it is desired to predict the circumstances of one or more occultations at any place, the first step will be to select them from the general list given in the Ephemeris. The conditions of visibility are:—

1. The limiting parallels in the last columns must include the latitude of the place.
2. The quantity $H - \lambda$, taken without regard to sign, must be less than the semi-diurnal

arc of the star by at least one hour. On very rare occasions an emersion might be seen in the east, or an immersion in the west, when this difference is a few minutes less than an hour.

3. The Sun must not be much more than an hour above the horizon at the local mean time $T - \lambda$, unless the star is bright enough to be seen in the daytime.

When many occultations are to be selected, the most convenient course will be to write the value of $-\lambda$ on the bottom of a slip of paper, and in passing through the list of occultations, to pause over each one for which condition (1) is fulfilled, and examine by means of the slip whether conditions (2) and (3) are also fulfilled. If either fails, the computer passes on. Sometimes it will be difficult to determine whether $H - \lambda$ or $T - \lambda$ falls within the limits; and in such cases the computer may mark the occultation for trial and leave the decision for the subsequent operations. The whole list can be gone over in less than a day, and it will probably be found that about one-tenth of the occultations are marked for trial.

The next step will be to compute the local times of immersion and emersion from the elements, and to that end let—

T=the instant of geocentric conjunction of Moon and star in right ascension, expressed in Washington mean solar time;
H=the Washington west hour angle of the two bodies at that moment;
λ=the longitude west of Washington;
$h_0=H-\lambda$=the local hour angle of the star at the instant T;
δ=the star's declination.

The procedure for each occultation will then be as follows:—

(1) The geocentric co-ordinates of the place, $\rho \sin \varphi'$ and $\rho \cos \varphi'$, are to be computed by the formulæ and table given in connection with eclipses on page 571.

The next step will be to find the approximate instant of apparent conjunction of the Moon and star as seen from the place, and that may be deduced from the time of geocentric conjunction by the application of an approximate correction taken from Mr. Downes's table, printed in the volumes of the American Ephemeris for 1882 to 1899. This correction must be reckoned in mean solar hours, and will be designated by the symbol t. It will have the same sign as h_0.

When Downes's table is not available, the correction may be computed from the formulæ,

$$\xi_0 = \rho \cos \varphi' \sin h_0$$
$$\xi' = [9.4192] \cos \frac{4}{3} h_0$$
$$t = \frac{\xi_0}{x' - \xi'}$$

By applying t to the Washington mean time of geocentric conjunction, as given with the elements, we shall have the Washington mean time of local conjunction within a few minutes.

(2) Compute for the instant $T+t$ the following quantities, in which t_0 is the sidereal equivalent of the mean time interval t:

$$\xi = \rho \cos \varphi' \sin (h_0 + t_0)$$
$$\eta = \rho \sin \varphi' \cos \delta - \rho \cos \varphi' \sin \delta \cos (h_0 + t_0) = \eta_1 - \eta_2$$
$$\xi' = [9.4192]\, \rho \cos \varphi' \cos (h_0 + t_0)$$
$$\eta' = [9.4192]\, \rho \cos \varphi' \sin \delta \sin (h_0 + t_0) = [9.4192]\, \xi \sin \delta$$
$$x = x't$$
$$y = Y + y't$$

Compute also m, M, n, N, and ψ from the equations

$$\begin{aligned} m \sin M &= x - \xi \\ m \cos M &= y - \eta \\ n \sin N &= x' - \xi' \\ n \cos N &= y' - \eta' \\ \sin \psi &= [0.5646]\, m \sin (M - N) \end{aligned}$$

ψ being taken between the limits ± 90°. Finally compute

$$\tau = -\frac{[1.7782]m}{n} \cos (M - N) \mp \frac{[1.2135]}{n} \cos \psi$$

$$\delta\tau = \frac{[6.7591]\tau^2}{n \cos \psi} [\eta_2 \cos (N \mp \psi) - \xi \sin (N \mp \psi)]$$

where the double signs are to be taken negative for an immersion and positive for an emersion. Both τ and $\delta\tau$ thus have two values, which are expressed in minutes of time, and in order to distinguish them let those pertaining to immersion be designated respectively τ' and $\delta\tau'$, while those pertaining to emersion are designated τ'' and $\delta\tau''$. We then have for the Washington mean times of the phases

$$\begin{aligned} \text{Instant of immersion} &= T + t + \tau' + \delta\tau' \\ \text{Instant of emersion} &= T + t + \tau'' + \delta\tau'' \end{aligned}$$

These expressions are practically exact, but the corrections $\delta\tau$ seldom amount to so much as 1.5 minutes, and whenever an inaccuracy of that magnitude is permissible they may be omitted. As a check upon the results, it will be advisable to compute ξ, η, x, and y for the times of immersion and emersion finally obtained. If these times are correct the quantities in question will fulfill the condition,

$$\sqrt{(x - \xi)^2 + (y - \eta)^2} = 0.2725$$

If $\log m \sin (M - N) > 9.4354$, $\sin \psi$ will be numerically greater than unity, and no occultation is to be expected at the given place; but a very brief one may occur if the excess of the computed distance over the Moon's semidiameter happens to be within the errors of the ephemerides of the Moon and star.

The position-angle of the line from the Moon's center to the star, at the time of contact, is reckoned from the north point toward the east, and designated by the symbol P. It is computed from the formula,

$$\begin{aligned} P &= N - \psi + \delta P && \text{for immersion,} \\ P &= N + \psi + \delta P \pm 180° && \text{for emersion,} \end{aligned}$$

where the angles $N - \psi$ and $N + \psi$ are taken directly from the computation of $\delta\tau$, and δP is found in degrees of arc from the expression

$$\delta P = \mp \frac{[7.3038]\tau^2}{\cos \psi} [\eta_2 \sin N + \xi \cos N]$$

In the latter formula the double sign is to be taken negative for an immersion and positive for an emersion.

The angle from the vertex, V, is also reckoned in the direction from the north toward the east, and is found from the formula,

$$V = P - C$$

where C is computed from the expression

$$\tan C = \frac{\xi + [8.2218]\tau\xi' - [4.9810]\tau^2\xi}{\eta + [8.2218]\tau\eta' + [4.9810]\tau^2\eta_2}$$

C being taken less or greater than 180°, according as the numerator is positive or negative.

The value of τ employed in the latter formula must be so taken as to correspond with the phase for which C is required.

In the volumes of the American Ephemeris for the years 1882 to 1901 instructions are given for constructing three special tables which greatly diminish the labor of computing occultations, but as these tables should contain from 4 700 to 6 300 quantities, and as they would apply only to the place for which they were computed, it will rarely be worth while to undertake the labor of forming them. Those who desire further information on the subject may consult any one of the volumes in question.

As an example of an isolated occultation, we will compute that of *g* Geminorum on April 2, 1906, for St. Louis, whose position is—

$$\varphi = +\ 38^\circ\ 38'\ 3''.0$$
$$\lambda = +\ 0^{\mathrm{h}}\ 52^{\mathrm{m}}\ 33^{\mathrm{s}}.5$$

and whose geocentric co-ordinates are—

$$\rho \sin \varphi' = 9.7930$$
$$\rho \cos \varphi' = 9.8933$$

From the elements on page 453, we have

$$T = \overset{\mathrm{h}}{10}\ \overset{\mathrm{m}}{27.3}$$
$$H = +\ 3\ 28.8$$

and
$$h_0 = H - \lambda = +\ 2\ 36.2$$

From Downes's table, or from the formulæ on page 577, we find the correction, t, to the Washington mean time of geocentric conjunction, T, to be about $1^{\mathrm{h}}\ 10^{\mathrm{m}}$; therefore the Washington mean time of apparent conjunction is—

$$T + t = \text{April}\ \ 2^{\mathrm{d}}\ 11^{\mathrm{h}}\ 37^{\mathrm{m}}.3.$$

g Geminorum.	W. T. of ☌ d h m April 2 10 27.3	Hour angle. h m + 3 28.8	Apparent declination. ° ′ + 18 44.3	Y + 0.4621	x' 0.5609	y' − 0.0504

$T + t$	April $2^{\mathrm{d}}\ 11^{\mathrm{h}}\ 37^{\mathrm{m}}.3$
h_0	+ 2 36.2
t_0	+ 1 10.2
$h_0 + t_0$ (in arc)	+ 56° 36′
$\rho \cos \varphi'$	9.8933
$\sin (h_0 + t_0)$	9.9216
$\log \xi$	9.8149
ξ	+ 0.6530
$\rho \sin \varphi'$	9.7930
$\cos \delta$	9.9763
$\log \eta_1$	9.7693
η_1	+ 0.5879
$\rho \cos \varphi'$	9.8933
$\sin \delta$	9.5068
$\cos (h_0 + t_0)$	9.7407
$\log \eta_2$	9.1408
η_2	+ 0.1383
$\eta_1 - \eta_2 = \eta$	+ 0.4496
const. log	9.4192
$\rho \cos \varphi' \cos (h_0 + t_0)$	9.6340
$\log \xi'$	9.0532

ξ'	+ 0.1130
const. log	9.4192
$\xi \sin \delta$	9.3217
$\log \eta'$	8.7409
η'	+ 0.0551
$\log x'$	9.7489
$\log t$	0.0669
$\log x$	9.8158
x	+ 0.6544
$\log y'$	8.7024 *n*
$\log y'\,t$	8.7693 *n*
$y'\,t$	− 0.0588
Y	+ 0.4621
y	+ 0.4033
$x - \xi$	+ 0.0015
$y - \eta$	− 0.0463
$x' - \xi'$	+ 0.4479
$y' - \eta'$	− 0.1055
$m \sin M$	7.1761
$m \cos M$	8.6656 *n*
$\tan M$	8.5105 *n*

$T + t$	April $2^{d}\ 11^{h}\ 37^{m}.3$
M	178° 9′
$\cos M$	9.9998 n
$\log m$	8.6658
$n \sin N$	9.6512
$n \cos N$	9.0233 n
$\tan N$	0.6279 n
N	103° 15′
$\sin N$	9.9883
$\log n$	9.6629
const. log	0.5646
$\log m$	8.6658
$\sin (M - N)$	9.9847
$\sin \psi$	9.2151

ψ	+ 9° 27′
const. log	1.7782 n
$\log \frac{m}{n}$	9.0029
$\cos (M - N)$	9.4158
	0.1969 n
$-\frac{[1.7782]\ m}{n} \cos (M - N)$	− 1.57
const. log	1.2135
colog n	0.3371
$\cos \psi$	9.9941
	1.5447
$\mp \frac{[1.2135] \cos \psi}{n}$	∓ 35.05
	m
τ for immersion	— 36.62
τ for emersion	+ 33.48

The computation of $\delta\tau$ for the two contacts is as follows:

		Immersion.	Emersion.
$N \mp \psi$		93° 48′	112° 42′
$\cos (N \mp \psi)$		8.8213 n	9.5865 n
$\log \eta_2$		9.1408	9.1408
log (1)		7.9621 n	8.7273 n
(1)		— 0.0092	— 0.0534
$\sin (N \mp \psi)$		9.9990	9.9650
$\log \xi$		9.8149	9.8149
log (2)		9.8139	9.7799
(2)		+ 0.6515	+ 0.6024
(1) — (2)		— 0.6607	— 0.6558
log [(1) — (2)]		9.8200 n	9.8168 n
const. log		6.7591	6.7591
$\log \tau^2$		3.1274	3.0496
colog $(n \cos \psi)$		0.3430	0.3430
$\log \delta\tau$		0.0495 n	9.9685 n
		m	m
$\delta\tau$		— 1.12	— 0.93
$\tau + \delta\tau$		— 37.74	+ 32.55
		d h m	h m
$T + t$	April	2 11 37.3	11 37.3
Washington Mean Time of Phase,	"	2 10 59.6	12 9.9
λ		+ 0 52.6	+ 0 52.6
St. Louis Mean Time,	"	2 10 7.0	11 17.3

To find δP and P:

$\log \eta_2$	9.1408	$\log \xi$	9.8149	(3)	+ 0.1346
$\sin N$	9.9883	$\cos N$	9.3604 n	(4)	— 0.1497
log (3)	9.1291	log (4)	9.1753 n	(3) + (4)	— 0.0151

		Immersion.	Emersion.
	$\log [(3) + (4)]$	$8.1790\,n$	$8.1790\,n$
	const. log	$7.3038\,n$	7.3038
	$\log \tau^2$	3.1274	3.0496
	colog $\cos \psi$	0.0059	0.0059
	$\log \delta P$	8.6161	$8.5383\,n$
		°	°
	δP	$+ 0.04$	$- 0.03$
	$N \mp \psi$	93.8	112.7
	constant	0.0	$+180.0$
Angle of position:	P	94°	293°

from the north point of the Moon's limb toward the east, for direct image.

Occultations Visible at Washington, pages 481–483.—Here are given in detail all the data necessary for observing every occultation of the general list which is visible at Washington during the current year.

Phenomena of Planets and Satellites, pages 484–517.—These are, for the most part, sufficiently explained in the body of the work, but the following additional explanations may be of service in some cases:—

Disks of Mercury, Venus and Mars, pages 484–486.—The angle θ, needed in reducing meridian observations, is the angle which the arc of the great circle from the planet to the Sun makes with the arc from the planet toward the west, reckoned in the direction west, north, east, south. This position-angle is reckoned from 0° to 360°, as in the measurement of double stars, the planet taking the place of the central star, but its measure is 90° greater than in the case of a double star.

We may also regard θ as expressing the angle which the line of cusps makes with the meridian, the positive direction of the meridian being toward the north, and the positive direction of the line of cusps that in which a person following this line would have the illuminated portion of the disk on his right.

Satellites of Jupiter, pages 487–511.—The abbreviations designating the phenomena are explained at the foot of each page; the diagram is on page 487.

Satellites of Saturn, pages 512–515.—The diagram and explanations are given on pages 512 and 513, the Washington mean times of greatest elongations on pages 513 to 515, and the apparent elements of the rings on page 515.

Satellites of Uranus, page 516.—This page gives the diagram and ephemerides of the satellites, together with their position-angles and distances from the center of the planet.

Satellite of Neptune, page 517.—This page gives the diagram and ephemerides of the satellite, together with the position-angles and distances from the center of the planet.

Phenomena, pages 518–519.—The predicted times of the conjunctions, quadratures, and oppositions of the planets with respect to the Sun are respectively the instants when the longitude of each planet differs from that of the Sun by 0°, ± 90°, or 180°.

For the conjunction of the planets with the Moon, and with each other, the predicted times are the instants when the two bodies have the same right ascension. The degrees and minutes to the right show the difference of declination at the moment of conjunction.

Positions of Observatories, pages 520–524.—The latest available data have been used in compiling these positions, and many of them have been furnished through the courtesy of the directors of the several observatories in response to a circular issued by this office. The values given for the *Reduction to Geocentric Latitude* and *Log* ρ are based upon Col. A. R. CLARKE's elements of the terrestrial spheroid, published in 1866, from which we have—

$$\log e = 8.915\,2515$$

$$\varphi' - \varphi = -\,11'\ 40''.44 \sin 2\varphi + 1''.19 \sin 4\varphi$$

$$\log \rho = 9.999\,2645 + 0.000\,7374 \cos 2\varphi - 0.000\,0019 \cos 4\varphi$$

PART IV—STAR NUMBERS, APPARENT PLACES OF STARS, AND OTHER DATA, BASED ON THE CONSTANTS OF THE PARIS CONFERENCE OF MAY, 1896.

Page 526 contains the formulæ for reducing the positions of the fixed stars and for computing the star numbers, the whole expressed in terms of the notation of Bessel and the constants of the Paris Conference of May, 1896.

Page 527 contains the usual data for precession, nutation, obliquity of the ecliptic, and the Sun's aberration, all of which will be rendered sufficiently clear by the explanations given on pages 565–566 respecting the similar data on pages 285–286.

Pages 528–531 contain the logarithms of the *Besselian Star-Numbers A, B, C, D,* for each Washington mean midnight, and pages 532–539 contain the *Independent Star-Numbers* for the same dates; to all of which the explanations given on pages 566–567 apply, except that the formulæ on page 526 must be employed instead of those on page 290.

Pages 540–551 contain the apparent positions of the five circumpolar stars, *α*, 6 B, *δ*, and *λ* Ursæ Minoris and 51 Cephei, for their upper transit at Washington. The arrangement of the data is the same as on pages 312–323, and consequently the explanations given on page 567 apply here also.

Pages 552–556 contain, for every tenth upper transit at Washington, the apparent places of 25 stars, being all those embraced in the list on pages 304–311 whose declination exceeds ± 78° 30′, except the five circumpolar stars. For stars of less declination than ± 78° 30′ the apparent places derived by using the constants of the Paris Conference differ from those derived by using the constants of Struve and Peters by quantities which never exceed $0^{s}.015$ in right ascension or $0''.05$ in declination, and consequently, throughout that range, the places given on pages 324–399 may be regarded as correct for either set of constants; or, in other words, when using the constants of the Paris Conference the positions of all stars not contained in pages 552–556 may be taken with sufficient accuracy from pages 324–399. The explanation on page 567, respecting the data on pages 324–399, applies also to pages 552–556.

Latitude by Observed Altitude of Polaris, page 595.—Table IV, page 595, replaces the Tables A, B, C, D, given as a *Supplement* to the volumes of the Ephemeris for 1874 to 1881, and is intended for use at sea and reconnaissance on land. It is constructed upon the assumption that Polaris has a declination of +88° 47′.8, and an observed altitude of 45°, and will furnish an approximate value of the latitude, the probable error of which, in so far as the table is concerned, will be a few tenths of a minute of arc.

The directions for using the table are adapted to an assumed right ascension of $1^{h}\,24^{m}.9$ for Polaris, but somewhat greater accuracy may be insured by substituting the right ascension for the date of observation, from pages 312–323 of this volume.

APPENDIX.

ON THE CONSTRUCTION OF THE AMERICAN EPHEMERIS AND NAUTICAL ALMANAC FOR 1906.

Among American astronomers there are wide differences of opinion respecting the decisions of the PARIS CONFERENCE of May, 1896, and for that reason it has been thought best to give, in the American Ephemeris for 1906, two wholly distinct sets of constants for precession, nutation, aberration, and mean obliquity of the ecliptic, namely: first, those of STRUVE and PETERS, and second, those adopted by the PARIS CONFERENCE of 1896. Their values for 1906.0 are as follows:

	Struve and Peters. ″	Paris Conference. ″
Precession . .	50.2652	50.2577
Nutation . . .	9.2241	9.21
Aberration . . .	20.4451	20.47
Mean Obliquity .	23° 27′ 4″.97	23° 27′ 5″.45

The constants of STRUVE and PETERS are employed in the quantities on pages 286 to 399, and those of the PARIS CONFERENCE in the quantities on pages 526 to 556, and thus everyone is left free to choose between them. For stars distant more than 11° 30′ from either pole, the apparent places derived by using the constants of the PARIS CONFERENCE differ from those derived by using the constants of STRUVE and PETERS by quantities which never exceed 0ˢ.015 in right ascension, and 0″.05 in declination, and consequently throughout that region the star ephemerides given on pages 324 to 399 may be regarded as correct for either set of constants. For the five circumpolar stars, and twenty-five other stars whose declinations exceed ±78° 30′ two sets of ephemerides are given; one depending upon the constants of STRUVE and PETERS, and the other depending upon the constants of the PARIS CONFERENCE.

The formulæ for the reduction of stars from mean to apparent place, using the constants of STRUVE and PETERS, are given on page 290.

The nutation given on page 286, and used in the Besselian and independent star-numbers, page 303; in f', pages 295 to 302, and in the ephemerides of the apparent places of the fixed stars for every tenth transit, pages 324 to 399, is computed with the values of A' and B' given on page 290, while the nutation used in the Besselian and independent star-numbers (except f') given on pages 291 to 302 is computed with the values of A and B given on page 290.

In the daily ephemeris of the five circumpolar stars given on pages 312 to 323 the nutation is computed with—

$$
\begin{aligned}
A = \tau &- \overset{''}{0}.342\,53 \sin \text{☊} \\
&+ 0.004\,10 \sin 2\text{☊} \\
&- 0.025\,19 \sin 2\odot \\
&+ 0.002\,93 \sin (\odot + 81^\circ\ 53') \\
&+ 0.000\,25 \sin (2\odot - \text{☊}) \\
&- 0.000\,11 \sin (3\odot - \Gamma\ ) \\
&- 0.000\,05 \sin 2(\odot - \text{☊}) \\
&+ 0.000\,10 \sin 2(\odot - \Gamma') \\
&+ 0.000\,09 \sin (2\Gamma'' - \text{☊}) \\
&+ 0.000\,05 \cos \Gamma'' \\
&+ 0.000\,04 \sin 2\Gamma'' \\
&- 0.004\,05 \sin 2\text{☾} \\
&+ 0.001\,35 \sin (\text{☾} - \Gamma')
\end{aligned}
$$

$$
\begin{aligned}
B = &- \overset{''}{9}.2241 \cos \text{☊} \\
&+ 0.0895 \cos 2\text{☊} \\
&- 0.5506 \cos 2\odot \\
&- 0.0092 \cos (\odot + 281^\circ\ 19') \\
&- 0.0027 \cos (3\odot - \Gamma) \\
&+ 0.0067 \cos (2\odot - \text{☊}) \\
&+ 0.0024 \cos (2\Gamma' - \text{☊}) \\
&- 0.0023 \sin \Gamma' \\
&+ 0.0008 \cos 2\Gamma' \\
&- 0.0885 \cos 2\text{☾}
\end{aligned}
$$

and the result in right ascension is diminished by the quantity $f - f' = -0''.1866 \sin 2\text{☾} + 0''.0622 \sin (\text{☾} - I'')$, which is the same for all stars.

The formulæ for the reduction of stars from mean to apparent place, using the constants of the Paris Conference, are given on page 526.

The nutation on page 527 includes only the terms in ☊, 2☊, L, 2L, and 3L. This value of the nutation has been used in all the ephemerides of the Sun, Moon, and planets, in the apparent places of the stars for every tenth transit given on pages 552 to 556, and in f' on pages 532 to 539. The nutation used in the daily ephemerides of the circumpolar stars, pages 540 to 551, is computed with—

$$\begin{aligned}
A = \tau &- \overset{''}{0.342\,17} \sin \text{☊} \\
&+ 0.004\,15 \sin 2\text{☊} \\
&- 0.024\,95 \sin 2\mathrm{L} \\
&+ 0.002\,18 \sin (\mathrm{L} + 75.3^\circ) \\
&- 0.000\,97 \sin (3\mathrm{L} + 78.7^\circ) \\
&+ 0.000\,25 \sin (2\odot - \text{☊}) \\
&- 0.000\,05 \sin 2(\odot - \text{☊}) \\
&+ 0.000\,10 \sin 2(\odot - \Gamma') \\
&+ 0.000\,09 \sin (2\Gamma' - \text{☊}) \\
&+ 0.000\,05 \cos \Gamma' \\
&+ 0.000\,04 \sin 2\Gamma' \\
&- 0.004\,05 \sin 2\text{☾} \\
&+ 0.001\,35 \sin (\text{☾} - \Gamma')
\end{aligned}
\qquad
\begin{aligned}
B = &- \overset{''}{9.2100} \cos \text{☊} \\
&+ 0.0900 \cos 2\text{☊} \\
&- 0.5460 \cos 2\mathrm{L} \\
&- 0.0210 \cos (3\mathrm{L} + 78.7^\circ) \\
&+ 0.0090 \cos (\mathrm{L} - 78.7^\circ) \\
&+ 0.0067 \cos (2\odot - \text{☊}) \\
&+ 0.0024 \cos (2\Gamma' - \text{☊}) \\
&- 0.0023 \sin \Gamma' \\
&+ 0.0008 \cos 2\Gamma' \\
&- 0.0885 \cos 2\text{☾}
\end{aligned}$$

and the result in right ascension is diminished by the quantity $f - f' = -0''.1866 \sin 2\text{☾} + 0''.0622 \sin (\text{☾} - I'')$, which is the same for all stars.

The terms of short period in the nutation given on pages 287 and 288 are included in the values of the star-numbers on pages 528 to 539. They are derived from manuscript tables of A'' and B'', in accordance with the formulæ—

$$\begin{aligned}
\delta''\psi &= \text{Nutation in longitude} = A''\psi \\
\delta''\omega &= \text{Nutation in obliquity} = -B''
\end{aligned}$$

where ψ = the luni-solar precession = $50''.3711$, and A'' and B'' are respectively the short period terms in the expressions for A and B on page 526. By short period terms are meant all terms involving the Moon's mean longitude.

According to the formulæ on pages 290 and 526, the star constants $a, b, c, d, a', b', c', d'$, are computed for each star from its mean place at the beginning of the year, but if strict accuracy is required they should be computed from the star's mean place at date, and the following second order terms should be added to the usual expressions for the reduction from mean to apparent place, namely—

$$\text{To } \alpha - \alpha_0 \qquad\qquad \text{To } \delta - \delta_0$$

$$\left.\begin{array}{l}
+\overset{s}{0}.000\,003\ \tau^2 \sin \alpha \\
-0.000\,149\ \tau^2 \cos \alpha
\end{array}\right\} \tan \delta
\qquad
\left.\begin{array}{l}
+\overset{''}{0}.000\,975\ \tau^2 \sin^2\alpha \\
-0.000\,023 \cos 2\text{☊} \\
-0.000\,080 \cos 2\text{☊} \cos 2\alpha \\
-0.000\,077 \sin 2\text{☊} \sin 2\alpha \\
+0.000\,040 \cos 2\odot \\
-0.000\,467 \cos 2\odot \cos 2\alpha \\
-0.000\,465 \sin 2\odot \sin 2\alpha
\end{array}\right\} \tan \delta$$

$$\left.\begin{array}{l}
-0.000\,0650\ \tau^2 \sin 2\alpha \\
+0.000\,0103 \sin 2\text{☊} \cos 2\alpha \\
-0.000\,0107 \cos 2\text{☊} \sin 2\alpha
\end{array}\right\} \tan^2\delta$$

$$\left.\begin{array}{l}
+0.000\,0620 \sin 2\odot \cos 2\alpha \\
-0.000\,0622 \cos 2\odot \sin 2\alpha
\end{array}\right\} \sec^2\delta$$

To $a - a_0$

$$\left.\begin{aligned}
&\overset{s}{+}\,0.000\,0513 \sin(\odot + \text{☊}) \cos 2a \\
&-\,0.000\,0507 \cos(\odot + \text{☊}) \sin 2a \\
&+\,0.000\,0097 \sin(\odot - \text{☊}) \cos 2a \\
&-\,0.000\,0053 \cos(\odot - \text{☊}) \sin 2a
\end{aligned}\right\} \tan\delta \sec\delta$$

To $\delta - \delta_0$

$$\left.\begin{aligned}
&\overset{\prime\prime}{-}\,0.000\,039 \cos(\odot + \text{☊}) \\
&-\,0.000\,380 \cos(\odot + \text{☊}) \cos 2a \\
&-\,0.000\,385 \sin(\odot + \text{☊}) \sin 2a \\
&-\,0.000\,380 \cos(\odot - \text{☊}) \\
&-\,0.000\,040 \cos(\odot - \text{☊}) \cos 2a \\
&-\,0.000\,072 \sin(\odot - \text{☊}) \sin 2a
\end{aligned}\right\} \sin\delta \tan\delta$$

These terms are negligible for stars whose declination is numerically less than 80°, but in computing the apparent places given in the American Ephemeris they have been applied whenever sensible.

The mean places of 383 stars, pages 304 to 311, are from the new *Catalogue of Fundamental Stars, for the epochs* 1875 *and* 1900, *Astronomical Papers of the American Ephemeris*, vol. VIII, part 2, prepared in this office, principally under the direction of Professor NEWCOMB.

The apparent places of Sirius and Procyon have been corrected for the effect of orbital motion, as determined from AUWERS' investigations, and tabulated in *Astronomical Papers of the American Ephemeris*, vol. I, pages 297–298. The values of these corrections are—

Year.	Sirius. s	″	Procyon. s	″
1906.0	$\Delta a = -0.090$	$\Delta\delta = +0.74$	$\Delta a = -0.005$	$\Delta\delta = -1.05$
1907.0	$\Delta a = -0.101$	$\Delta\delta = +0.62$	$\Delta a = -0.015$	$\Delta\delta = -1.02$

The ephemeris of the Sun is constructed from Professor NEWCOMB's *Tables of the Sun, Astronomical Papers of the American Ephemeris*, vol. VI, part 1.

The adopted value of the mean equatorial horizontal parallax of the Sun is 8″.80, *Paris Conference, May, 1896.*

The adopted apparent semidiameter of the Sun at the Earth's mean distance is that found by Prof. WM. HARKNESS, from 35 842 meridian observations made at Greenwich, Paris, Washington, Königsberg, Milan, Madras, Dorpat, Modena, and Seeberg, viz., 16′ 1″.50; while in the computation of eclipses the value given by AUWERS in the *Astronomische Nachrichten*, 1891, Bd. 128, S. 367, is employed, viz., 15′ 59″.63.

The Sun's rectangular equatorial co-ordinates are computed from the longitudes and latitudes by the following formulæ:—

$$\begin{aligned}
X &= R \cos\lambda \\
Y &= R \sin\lambda \cos\omega - 19.3\, R\,\beta \\
Z &= R \sin\lambda \sin\omega + 44.5\, R\,\beta
\end{aligned}$$

The reductions to mean equinox, 1906.0, are computed by the formulæ—

$$\begin{aligned}
\Delta X &= + Y \sec\omega\, \Delta\lambda \sin 1'' \\
\Delta Y &= - X \cos\omega\, \Delta\lambda \sin 1'' + Z\, \Delta\omega \sin 1'' + 9.1\, \tau R \sin(\lambda + 6^\circ) \\
\Delta Z &= - X \sin\omega\, \Delta\lambda \sin 1'' - Y \Delta\omega \sin 1'' - 21.0\, \tau R \sin(\lambda + 6^\circ)
\end{aligned}$$

wnere the numerical coefficients are in units of the seventh place of decimals and

R = the Sun's radius vector;
λ = the Sun's true longitude;
β = the Sun's true latitude, expressed in seconds of arc;
ω = the obliquity of the ecliptic;
$\Delta\lambda$ = the reduction of longitude for precession and nutation from the beginning of the Besselian fictitious year;
$\Delta\omega$ = the reduction of the mean to the apparent obliquity;
τ = the fraction of the year since the beginning of the Besselian fictitious year.

The longitude, latitude and parallax of the Moon are derived from HANSEN'S *Tables de la Lune*, London, 1857, the mean longitude being corrected in accordance with Professor NEWCOMB'S *Researches on the Motion of the Moon*, Part I, page 268,* and Table XXXIV being replaced by a corrected one.

The semidiameter of the Moon is computed from the Moon's equatorial horizontal parallax, π, by the formula,

$$S = 0.272\,506\,\pi + 1''.50$$

where the constant 0.272 506 is based on data from occultations given by Mr. J. PETERS in the *Astronomische Nachrichten*, 1895, Bd. 138, S. 147; and the constant 1″.50 is added to cover the average effect of irradiation. In the special case where $\pi = 57'\ 0''$, this formula agrees with Table XXII of HANSEN'S *Tables de la Lune*, p. 399, and in all other cases it is believed to be preferable to that table. The irradiation constant, 1″.50, is omitted in the computation of eclipses and occultations.

The ephemerides of Mercury, Venus and Mars are derived from Professor NEWCOMB'S tables of these planets, *Astronomical Papers of the American Ephemeris*, vol. VI, parts 2, 3 and 4.

The ephemerides of Jupiter and Saturn are derived from the tables constructed in this office by Dr. GEORGE W. HILL, *Astronomical Papers of the American Ephemeris*, vol. VII, parts 1 and 2.

The ephemerides of Uranus and Neptune are derived from Professor NEWCOMB'S tables of these planets, *Astronomical Papers of the American Ephemeris*, vol. VII, parts 3 and 4.

The semidiameters of the planets are computed from the following values:—

	Semidiameter.		Log Dist.	Authority.
	″	″		
Mercury	3.34		0.00	LE VERRIER, *Theory of Mercury*.
Venus	8.546	± 0.086	0.00	PEIRCE, from the Washington Observations of 1845 and 1846, made with the Mural Circle.
Mars	2.842	± 0.057	0.25	
Jupiter (polar)	18.78	± 0.067	0.70	
Saturn (polar)	8.77	± 0.039	0.95	
Uranus	1.68	± 0.3	1.30	
Neptune	1.28		1.48	
Jupiter (equatorial)	20.00		0.70	
Saturn (equatorial)	9.38		0.95	

The elements of eclipses of the Sun and occultations of stars by the Moon are given in accordance with BESSEL'S method, the special forms employed being a modification of those developed in CHAUVENET'S *Spherical and Practical Astronomy*.

The satellites of Mars are computed from manuscript tables based upon elements deduced by Prof. WALTER S. HARSHMAN. His elements of Deimos are published in the *Astronomical Journal*, 1894, vol. XIV, p. 147; but those of Phobos are yet in manuscript.

The eclipses of Jupiter's satellites are computed from a *Continuation of* DAMOISEAU'S *Tables*, prepared in this office. The occultations, transits, etc., are computed from WOOLHOUSE'S tables, published in the *British Nautical Almanac* for 1835; Table II of each satellite having been adapted to DAMOISEAU'S tables.

The fifth satellite of Jupiter is computed from manuscript tables based upon unpublished elements deduced by Mr. J. ROBERTSON.

The elongations and conjunctions of the satellites of Saturn are computed from Prof. H. STRUVE'S elements as published in *Beobachtungen der Saturnstrabanten*, St. Petersburg, 1898.

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* *Astronomical Observations made at the U. S. Naval Observatory, Washington, 1875*, Appendix II.

Errata, page 586, Am. Eph., 1906.

The apparent semidiameter of the Moon is computed from the Moon's equatorial horizontal parallax, π, by the formula,

$$S = 0.272\,506\,\pi + 1''.50$$

where the constant 0.272 506 is based on data from occultations given by Mr. J. PETERS in the *Astronomische Nachrichten*, 1895, Bd. 138, S. 147; and the constant 1″.50 is added to cover the average effect of irradiation. The value of the Moon's semidiameter employed in the computation of eclipses for 1906 was computed from the formula,

$$S = 0.272\,274\,\pi$$

the constant being the one used in this Ephemeris prior to 1902.

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CORRECTION REQUIRED, ON ACCOUNT OF SECOND DIFFERENCES OF THE MOON'S MOTION, IN FINDING THE GREENWICH TIME CORRESPONDING TO A CORRECTED LUNAR DISTANCE.

DIFFERENCE OF THE PROPORTIONAL LOGARITHMS IN THE EPHEMERIS.

Approximate Interval.		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
b m	h m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
0 0	3 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0 10	2 50	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
0 20	2 40	0	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
0 30	2 30	0	1	1	2	2	2	2	3	3	3	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9
0 40	2 20	0	1	1	2	2	3	3	3	4	4	5	5	6	6	6	7	7	8	8	9	9	10	10	10	11	11
0 50	2 10	1	1	2	2	3	3	4	4	5	5	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13	13
1 0	2 0	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13	13	14	14
1 10	1 50	1	1	2	2	3	4	4	5	5	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	15
1 20	1 40	1	1	2	3	3	4	4	5	6	6	7	7	8	9	9	10	10	11	12	12	13	14	14	15	15	16
1 30	1 30	1	1	2	3	3	4	4	5	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16

DIFFERENCE OF THE PROPORTIONAL LOGARITHMS IN THE EPHEMERIS.

Approximate Interval.		54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100
h m	h m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
0 0	3 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0 10	2 50	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	7
0 20	2 40	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12
0 30	2 30	9	10	10	10	11	11	12	12	12	13	13	13	14	14	14	14	15	15	16	16	16	17	17	17
0 40	2 20	12	12	13	13	13	14	14	15	15	16	16	16	17	17	18	18	19	19	19	20	20	21	21	22
0 50	2 10	14	14	15	15	16	16	16	17	17	18	19	19	20	20	21	21	22	22	22	23	23	24	24	25
1 0	2 0	15	16	16	17	17	18	18	19	19	20	21	21	22	22	23	23	24	24	25	25	26	27	27	28
1 10	1 50	16	17	17	18	18	19	19	20	21	21	22	22	23	24	24	25	25	26	27	27	28	28	29	30
1 20	1 40	17	17	18	19	19	20	20	21	21	22	23	23	24	25	25	26	26	27	28	28	29	29	30	31
1 30	1 30	17	18	18	19	19	20	21	21	22	23	23	24	24	25	25	26	27	27	28	29	29	30	31	31

DIFFERENCE OF THE PROPORTIONAL LOGARITHMS IN THE EPHEMERIS.

Approximate Interval.		102	104	106	108	110	112	114	116	118	120	122	124	126	128	130	132	134	136	138
h m	h m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
0 0	3 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0 10	2 50	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	9	9	9	9
0 20	2 40	13	13	13	13	14	14	14	14	15	15	15	15	15	16	16	16	16	17	17
0 30	2 30	18	18	18	19	19	19	20	20	20	21	21	21	22	22	22	23	23	24	24
0 40	2 20	22	22	23	23	24	24	25	25	25	26	26	27	27	28	28	28	29	29	30
0 50	2 10	26	26	26	27	27	28	29	29	29	30	30	31	31	32	32	33	33	34	34
1 0	2 0	28	29	29	30	30	31	31	32	33	33	34	34	35	35	36	37	37	38	38
1 10	1 50	30	31	31	32	32	33	34	34	35	35	36	37	37	38	38	39	40	40	41
1 20	1 40	31	32	33	33	34	34	35	35	36	37	38	38	39	39	40	41	41	42	42
1 30	1 30	32	32	33	34	34	35	35	36	36	37	38	39	39	40	40	41	42	42	43

The correction is to be added to the approximate Greenwich time when the proportional logarithms in the Ephemeris are decreasing, and subtracted when they are increasing.

0. ^{s}54.67

TABLE II.—SIDEREAL INTO MEAN SOLAR TIME.

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.

Side-real.	0^h		1^h		2^h		3^h		4^h		5^h		6^h		7^h		For Seconds.	
m	m	s	m	s	m	s	m	s	m	s	m	s	m	s	m	s	s	s
0	0	0.000	0	9.830	0	19.659	0	29.489	0	39.318	0	49.148	0	58.977	1	8.807	0	0.000
1	0	0.164	0	9.993	0	19.823	0	29.653	0	39.482	0	49.312	0	59.141	1	8.971	1	0.003
2	0	0.328	0	10.157	0	19.987	0	29.816	0	39.646	0	49.475	0	59.305	1	9.135	2	0.005
3	0	0.491	0	10.321	0	20.151	0	29.980	0	39.810	0	49.639	0	59.469	1	9.298	3	0.008
4	0	0.655	0	10.485	0	20.314	0	30.144	0	39.974	0	49.803	0	59.633	1	9.462	4	0.011
5	0	0.819	0	10.649	0	20.478	0	30.308	0	40.137	0	49.967	0	59.796	1	9.626	5	0.014
6	0	0.983	0	10.813	0	20.642	0	30.472	0	40.301	0	50.131	0	59.960	1	9.790	6	0.016
7	0	1.147	0	10.976	0	20.806	0	30.635	0	40.465	0	50.295	1	0.124	1	9.954	7	0.019
8	0	1.311	0	11.140	0	20.970	0	30.799	0	40.629	0	50.458	1	0.288	1	10.118	8	0.022
9	0	1.474	0	11.304	0	21.134	0	30.963	0	40.793	0	50.622	1	0.452	1	10.281	9	0.025
10	0	1.638	0	11.468	0	21.297	0	31.127	0	40.956	0	50.786	1	0.616	1	10.445	10	0.027
11	0	1.802	0	11.632	0	21.461	0	31.291	0	41.120	0	50.950	1	0.779	1	10.609	11	0.030
12	0	1.966	0	11.795	0	21.625	0	31.455	0	41.284	0	51.114	1	0.943	1	10.773	12	0.033
13	0	2.130	0	11.959	0	21.789	0	31.618	0	41.448	0	51.278	1	1.107	1	10.937	13	0.035
14	0	2.294	0	12.123	0	21.953	0	31.782	0	41.612	0	51.441	1	1.271	1	11.100	14	0.038
15	0	2.457	0	12.287	0	22.117	0	31.946	0	41.776	0	51.605	1	1.435	1	11.264	15	0.041
16	0	2.621	0	12.451	0	22.280	0	32.110	0	41.939	0	51.769	1	1.599	1	11.428	16	0.044
17	0	2.785	0	12.615	0	22.444	0	32.274	0	42.103	0	51.933	1	1.762	1	11.592	17	0.046
18	0	2.949	0	12.778	0	22.608	0	32.438	0	42.267	0	52.097	1	1.926	1	11.756	18	0.049
19	0	3.113	0	12.942	0	22.772	0	32.601	0	42.431	0	52.260	1	2.090	1	11.920	19	0.052
20	0	3.277	0	13.106	0	22.936	0	32.765	0	42.595	0	52.424	1	2.254	1	12.083	20	0.055
21	0	3.440	0	13.270	0	23.099	0	32.929	0	42.759	0	52.588	1	2.418	1	12.247	21	0.057
22	0	3.604	0	13.434	0	23.263	0	33.093	0	42.922	0	52.752	1	2.582	1	12.411	22	0.060
23	0	3.768	0	13.598	0	23.427	0	33.257	0	43.086	0	52.916	1	2.745	1	12.575	23	0.063
24	0	3.932	0	13.761	0	23.591	0	33.420	0	43.250	0	53.080	1	2.909	1	12.739	24	0.066
25	0	4.096	0	13.925	0	23.755	0	33.584	0	43.414	0	53.243	1	3.073	1	12.903	25	0.068
26	0	4.259	0	14.089	0	23.919	0	33.748	0	43.578	0	53.407	1	3.237	1	13.066	26	0.071
27	0	4.423	0	14.253	0	24.082	0	33.912	0	43.742	0	53.571	1	3.401	1	13.230	27	0.074
28	0	4.587	0	14.417	0	24.246	0	34.076	0	43.905	0	53.735	1	3.564	1	13.394	28	0.076
29	0	4.751	0	14.581	0	24.410	0	34.240	0	44.069	0	53.899	1	3.728	1	13.558	29	0.079
30	0	4.915	0	14.744	0	24.574	0	34.403	0	44.233	0	54.063	1	3.892	1	13.722	30	0.082
31	0	5.079	0	14.908	0	24.738	0	34.567	0	44.397	0	54.226	1	4.056	1	13.886	31	0.085
32	0	5.242	0	15.072	0	24.902	0	34.731	0	44.561	0	54.390	1	4.220	1	14.049	32	0.087
33	0	5.406	0	15.236	0	25.065	0	34.895	0	44.724	0	54.554	1	4.384	1	14.213	33	0.090
34	0	5.570	0	15.400	0	25.229	0	35.059	0	44.888	0	54.718	1	4.547	1	14.377	34	0.093
35	0	5.734	0	15.563	0	25.393	0	35.223	0	45.052	0	54.882	1	4.711	1	14.541	35	0.096
36	0	5.898	0	15.727	0	25.557	0	35.386	0	45.216	0	55.046	1	4.875	1	14.705	36	0.098
37	0	6.062	0	15.891	0	25.721	0	35.550	0	45.380	0	55.209	1	5.039	1	14.868	37	0.101
38	0	6.225	0	16.055	0	25.885	0	35.714	0	45.544	0	55.373	1	5.203	1	15.032	38	0.104
39	0	6.389	0	16.219	0	26.048	0	35.878	0	45.707	0	55.537	1	5.367	1	15.196	39	0.106
40	0	6.553	0	16.383	0	26.212	0	36.042	0	45.871	0	55.701	1	5.530	1	15.360	40	0.109
41	0	6.717	0	16.546	0	26.376	0	36.206	0	46.035	0	55.865	1	5.694	1	15.524	41	0.112
42	0	6.881	0	16.710	0	26.540	0	36.369	0	46.199	0	56.028	1	5.858	1	15.688	42	0.115
43	0	7.045	0	16.874	0	26.704	0	36.533	0	46.363	0	56.192	1	6.022	1	15.851	43	0.117
44	0	7.208	0	17.038	0	26.867	0	36.697	0	46.527	0	56.356	1	6.186	1	16.015	44	0.120
45	0	7.372	0	17.202	0	27.031	0	36.861	0	46.690	0	56.520	1	6.350	1	16.179	45	0.123
46	0	7.536	0	17.366	0	27.195	0	37.025	0	46.854	0	56.684	1	6.513	1	16.343	46	0.126
47	0	7.700	0	17.529	0	27.359	0	37.188	0	47.018	0	56.848	1	6.677	1	16.507	47	0.128
48	0	7.864	0	17.693	0	27.523	0	37.352	0	47.182	0	57.011	1	6.841	1	16.671	48	0.131
49	0	8.027	0	17.857	0	27.687	0	37.516	0	47.346	0	57.175	1	7.005	1	16.834	49	0.134
50	0	8.191	0	18.021	0	27.850	0	37.680	0	47.510	0	57.339	1	7.169	1	16.998	50	0.137
51	0	8.355	0	18.185	0	28.014	0	37.844	0	47.673	0	57.503	1	7.332	1	17.162	51	0.139
52	0	8.519	0	18.349	0	28.178	0	38.008	0	47.837	0	57.667	1	7.496	1	17.326	52	0.142
53	0	8.683	0	18.512	0	28.342	0	38.171	0	48.001	0	57.831	1	7.660	1	17.490	53	0.145
54	0	8.847	0	18.676	0	28.506	0	38.335	0	48.165	0	57.994	1	7.824	1	17.654	54	0.147
55	0	9.010	0	18.840	0	28.670	0	38.499	0	48.329	0	58.158	1	7.988	1	17.817	55	0.150
56	0	9.174	0	19.004	0	28.833	0	38.663	0	48.492	0	58.322	1	8.152	1	17.981	56	0.153
57	0	9.338	0	19.168	0	28.997	0	38.827	0	48.656	0	58.486	1	8.315	1	18.145	57	0.156
58	0	9.502	0	19.331	0	29.161	0	38.991	0	48.820	0	58.650	1	8.479	1	18.309	58	0.158
59	0	9.666	0	19.495	0	29.325	0	39.154	0	48.984	0	58.814	1	8.643	1	18.473	59	0.161
Side-real.	0^h		1^h		2^h		3^h		4^h		5^h		6^h		7^h		For Seconds.	

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.

Sidereal.	8^h	9^h	10^h	11^h	12^h	13^h	14^h	15^h	For Seconds.	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	1 18.636	1 28.466	1 38.296	1 48.125	1 57.955	2 7.784	2 17.614	2 27.443	0	0.000
1	1 18.800	1 28.630	1 38.459	1 48.289	1 58.119	2 7.948	2 17.778	2 27.607	1	0.003
2	1 18.964	1 28.794	1 38.623	1 48.453	1 58.282	2 8.112	2 17.941	2 27.771	2	0.005
3	1 19.128	1 28.958	1 38.787	1 48.617	1 58.446	2 8.276	2 18.105	2 27.935	3	0.008
4	1 19.292	1 29.121	1 38.951	1 48.780	1 58.610	2 8.440	2 18.269	2 28.099	4	0.011
5	1 19.456	1 29.285	1 39.115	1 48.944	1 58.774	2 8.603	2 18.433	2 28.263	5	0.014
6	1 19.619	1 29.449	1 39.279	1 49.108	1 58.938	2 8.767	2 18.597	2 28.426	6	0.016
7	1 19.783	1 29.613	1 39.442	1 49.272	1 59.101	2 8.931	2 18.761	2 28.590	7	0.019
8	1 19.947	1 29.777	1 39.606	1 49.436	1 59.265	2 9.095	2 18.924	2 28.754	8	0.022
9	1 20.111	1 29.940	1 39.770	1 49.600	1 59.429	2 9.259	2 19.088	2 28.918	9	0.025
10	1 20.275	1 30.104	1 39.934	1 49.763	1 59.593	2 9.423	2 19.252	2 29.082	10	0.027
11	1 20.439	1 30.268	1 40.098	1 49.927	1 59.757	2 9.586	2 19.416	2 29.245	11	0.030
12	1 20.602	1 30.432	1 40.261	1 50.091	1 59.921	2 9.750	2 19.580	2 29.409	12	0.033
13	1 20.766	1 30.596	1 40.425	1 50.255	2 0.084	2 9.914	2 19.744	2 29.573	13	0.035
14	1 20.930	1 30.760	1 40.589	1 50.419	2 0.248	2 10.078	2 19.907	2 29.737	14	0.038
15	1 21.094	1 30.923	1 40.753	1 50.583	2 0.412	2 10.242	2 20.071	2 29.901	15	0.041
16	1 21.258	1 31.087	1 40.917	1 50.746	2 0.576	2 10.405	2 20.235	2 30.065	16	0.044
17	1 21.422	1 31.251	1 41.081	1 50.910	2 0.740	2 10.569	2 20.399	2 30.228	17	0.046
18	1 21.585	1 31.415	1 41.244	1 51.074	2 0.904	2 10.733	2 20.563	2 30.392	18	0.049
19	1 21.749	1 31.579	1 41.408	1 51.238	2 1.067	2 10.897	2 20.727	2 30.556	19	0.052
20	1 21.913	1 31.743	1 41.572	1 51.402	2 1.231	2 11.061	2 20.890	2 30.720	20	0.055
21	1 22.077	1 31.906	1 41.736	1 51.565	2 1.395	2 11.225	2 21.054	2 30.884	21	0.057
22	1 22.241	1 32.070	1 41.900	1 51.729	2 1.559	2 11.388	2 21.218	2 31.048	22	0.060
23	1 22.404	1 32.234	1 42.064	1 51.893	2 1.723	2 11.552	2 21.382	2 31.211	23	0.063
24	1 22.568	1 32.398	1 42.227	1 52.057	2 1.887	2 11.716	2 21.546	2 31.375	24	0.066
25	1 22.732	1 32.562	1 42.391	1 52.221	2 2.050	2 11.880	2 21.709	2 31.539	25	0.068
26	1 22.896	1 32.726	1 42.555	1 52.385	2 2.214	2 12.044	2 21.873	2 31.703	26	0.071
27	1 23.060	1 32.889	1 42.719	1 52.548	2 2.378	2 12.208	2 22.037	2 31.867	27	0.074
28	1 23.224	1 33.053	1 42.883	1 52.712	2 2.542	2 12.371	2 22.201	2 32.031	28	0.076
29	1 23.387	1 33.217	1 43.047	1 52.876	2 2.706	2 12.535	2 22.365	2 32.194	29	0.079
30	1 23.551	1 33.381	1 43.210	1 53.040	2 2.869	2 12.699	2 22.529	2 32.358	30	0.082
31	1 23.715	1 33.545	1 43.374	1 53.204	2 3.033	2 12.863	2 22.692	2 32.522	31	0.085
32	1 23.879	1 33.708	1 43.538	1 53.368	2 3.197	2 13.027	2 22.856	2 32.686	32	0.087
33	1 24.043	1 33.872	1 43.702	1 53.531	2 3.361	2 13.191	2 23.020	2 32.850	33	0.090
34	1 24.207	1 34.036	1 43.866	1 53.695	2 3.525	2 13.354	2 23.184	2 33.013	34	0.093
35	1 24.370	1 34.200	1 44.029	1 53.859	2 3.689	2 13.518	2 23.348	2 33.177	35	0.096
36	1 24.534	1 34.364	1 44.193	1 54.023	2 3.852	2 13.682	2 23.512	2 33.341	36	0.098
37	1 24.698	1 34.528	1 44.357	1 54.187	2 4.016	2 13.846	2 23.675	2 33.505	37	0.101
38	1 24.862	1 34.691	1 44.521	1 54.351	2 4.180	2 14.010	2 23.839	2 33.669	38	0.104
39	1 25.026	1 34.855	1 44.685	1 54.514	2 4.344	2 14.173	2 24.003	2 33.833	39	0.106
40	1 25.190	1 35.019	1 44.849	1 54.678	2 4.508	2 14.337	2 24.167	2 33.996	40	0.109
41	1 25.353	1 35.183	1 45.012	1 54.842	2 4.672	2 14.501	2 24.331	2 34.160	41	0.112
42	1 25.517	1 35.347	1 45.176	1 55.006	2 4.835	2 14.665	2 24.495	2 34.324	42	0.115
43	1 25.681	1 35.511	1 45.340	1 55.170	2 4.999	2 14.829	2 24.658	2 34.488	43	0.117
44	1 25.845	1 35.674	1 45.504	1 55.333	2 5.163	2 14.993	2 24.822	2 34.652	44	0.120
45	1 26.009	1 35.838	1 45.668	1 55.497	2 5.327	2 15.156	2 24.986	2 34.816	45	0.123
46	1 26.172	1 36.002	1 45.832	1 55.661	2 5.491	2 15.320	2 25.150	2 34.979	46	0.126
47	1 26.336	1 36.166	1 45.995	1 55.825	2 5.655	2 15.484	2 25.314	2 35.143	47	0.128
48	1 26.500	1 36.330	1 46.159	1 55.989	2 5.818	2 15.648	2 25.477	2 35.307	48	0.131
49	1 26.664	1 36.493	1 46.323	1 56.153	2 5.982	2 15.812	2 25.641	2 35.471	49	0.134
50	1 26.828	1 36.657	1 46.487	1 56.316	2 6.146	2 15.976	2 25.805	2 35.635	50	0.137
51	1 26.992	1 36.821	1 46.651	1 56.480	2 6.310	2 16.139	2 25.969	2 35.798	51	0.139
52	1 27.155	1 36.985	1 46.815	1 56.644	2 6.474	2 16.303	2 26.133	2 35.962	52	0.142
53	1 27.319	1 37.149	1 46.978	1 56.808	2 6.637	2 16.467	2 26.297	2 36.126	53	0.145
54	1 27.483	1 37.313	1 47.142	1 56.972	2 6.801	2 16.631	2 26.460	2 36.290	54	0.147
55	1 27.647	1 37.476	1 47.306	1 57.136	2 6.965	2 16.795	2 26.624	2 36.454	55	0.150
56	1 27.811	1 37.640	1 47.470	1 57.299	2 7.129	2 16.959	2 26.788	2 36.618	56	0.153
57	1 27.975	1 37.804	1 47.634	1 57.463	2 7.293	2 17.122	2 26.952	2 36.781	57	0.156
58	1 28.138	1 37.968	1 47.797	1 57.627	2 7.457	2 17.286	2 27.116	2 36.945	58	0.158
59	1 28.302	1 38.132	1 47.961	1 57.791	2 7.620	2 17.450	2 27.280	2 37.109	59	0.161
Sidereal.	8^h	9^h	10^h	11^h	12^h	13^h	14^h	15^h	For Seconds.	

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.

Sidereal.	16^h	17^h	18^h	19^h	20^h	21^h	22^h	23^h	For Seconds.	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	2 37.273	2 47.102	2 56.932	3 6.762	3 16.591	3 26.421	3 36.250	3 46.080	0	0.000
1	2 37.437	2 47.266	2 57.096	3 6.925	3 16.755	3 26.585	3 36.414	3 46.244	1	0.003
2	2 37.601	2 47.430	2 57.260	3 7.089	3 16.919	3 26.748	3 36.578	3 46.407	2	0.005
3	2 37.764	2 47.594	2 57.424	3 7.253	3 17.083	3 26.912	3 36.742	3 46.571	3	0.008
4	2 37.928	2 47.758	2 57.587	3 7.417	3 17.246	3 27.076	3 36.906	3 46.735	4	0.011
5	2 38.092	2 47.922	2 57.751	3 7.581	3 17.410	3 27.240	3 37.069	3 46.899	5	0.014
6	2 38.256	2 48.085	2 57.915	3 7.745	3 17.574	3 27.404	3 37.233	3 47.063	6	0.016
7	2 38.420	2 48.249	2 58.079	3 7.908	3 17.738	3 27.568	3 37.397	3 47.227	7	0.019
8	2 38.584	2 48.413	2 58.243	3 8.072	3 17.902	3 27.731	3 37.561	3 47.390	8	0.022
9	2 38.747	2 48.577	2 58.406	3 8.236	3 18.066	3 27.895	3 37.725	3 47.554	9	0.025
10	2 38.911	2 48.741	2 58.570	3 8.400	3 18.229	3 28.059	3 37.889	3 47.718	10	0.027
11	2 39.075	2 48.905	2 58.734	3 8.564	3 18.393	3 28.223	3 38.052	3 47.882	11	0.030
12	2 39.239	2 49.068	2 58.898	3 8.728	3 18.557	3 28.387	3 38.216	3 48.046	12	0.033
13	2 39.403	2 49.232	2 59.062	3 8.891	3 18.721	3 28.550	3 38.380	3 48.210	13	0.035
14	2 39.566	2 49.396	2 59.226	3 9.055	3 18.885	3 28.714	3 38.544	3 48.373	14	0.038
15	2 39.730	2 49.560	2 59.389	3 9.219	3 19.049	3 28.878	3 38.708	3 48.537	15	0.041
16	2 39.894	2 49.724	2 59.553	3 9.383	3 19.212	3 29.042	3 38.871	3 48.701	16	0.044
17	2 40.058	2 49.888	2 59.717	3 9.547	3 19.376	3 29.206	3 39.035	3 48.865	17	0.046
18	2 40.222	2 50.051	2 59.881	3 9.710	3 19.540	3 29.370	3 39.199	3 49.029	18	0.049
19	2 40.386	2 50.215	3 0.045	3 9.874	3 19.704	3 29.533	3 39.363	3 49.193	19	0.052
20	2 40.549	2 50.379	3 0.209	3 10.038	3 19.868	3 29.697	3 39.527	3 49.356	20	0.055
21	2 40.713	2 50.543	3 0.372	3 10.202	3 20.032	3 29.861	3 39.691	3 49.520	21	0.057
22	2 40.877	2 50.707	3 0.536	3 10.366	3 20.195	3 30.025	3 39.854	3 49.684	22	0.060
23	2 41.041	2 50.870	3 0.700	3 10.530	3 20.359	3 30.189	3 40.018	3 49.848	23	0.063
24	2 41.205	2 51.034	3 0.864	3 10.693	3 20.523	3 30.353	3 40.182	3 50.012	24	0.066
25	2 41.369	2 51.198	3 1.028	3 10.857	3 20.687	3 30.516	3 40.346	3 50.175	25	0.068
26	2 41.532	2 51.362	3 1.192	3 11.021	3 20.851	3 30.680	3 40.510	3 50.339	26	0.071
27	2 41.696	2 51.526	3 1.355	3 11.185	3 21.014	3 30.844	3 40.674	3 50.503	27	0.074
28	2 41.860	2 51.690	3 1.519	3 11.349	3 21.178	3 31.008	3 40.837	3 50.667	28	0.076
29	2 42.024	2 51.853	3 1.683	3 11.513	3 21.342	3 31.172	3 41.001	3 50.831	29	0.079
30	2 42.188	2 52.017	3 1.847	3 11.676	3 21.506	3 31.336	3 41.165	3 50.995	30	0.082
31	2 42.352	2 52.181	3 2.011	3 11.840	3 21.670	3 31.499	3 41.329	3 51.158	31	0.085
32	2 42.515	2 52.345	3 2.174	3 12.004	3 21.834	3 31.663	3 41.493	3 51.322	32	0.087
33	2 42.679	2 52.509	3 2.338	3 12.168	3 21.997	3 31.827	3 41.657	3 51.486	33	0.090
34	2 42.843	2 52.673	3 2.502	3 12.332	3 22.161	3 31.991	3 41.820	3 51.650	34	0.093
35	2 43.007	2 52.836	3 2.666	3 12.496	3 22.325	3 32.155	3 41.984	3 51.814	35	0.096
36	2 43.171	2 53.000	3 2.830	3 12.659	3 22.489	3 32.318	3 42.148	3 51.978	36	0.098
37	2 43.334	2 53.164	3 2.994	3 12.823	3 22.653	3 32.482	3 42.312	3 52.141	37	0.101
38	2 43.498	2 53.328	3 3.157	3 12.987	3 22.817	3 32.646	3 42.476	3 52.305	38	0.104
39	2 43.662	2 53.492	3 3.321	3 13.151	3 22.980	3 32.810	3 42.639	3 52.469	39	0.106
40	2 43.826	2 53.656	3 3.485	3 13.315	3 23.144	3 32.974	3 42.803	3 52.633	40	0.109
41	2 43.990	2 53.819	3 3.649	3 13.478	3 23.308	3 33.138	3 42.967	3 52.797	41	0.112
42	2 44.154	2 53.983	3 3.813	3 13.642	3 23.472	3 33.301	3 43.131	3 52.961	42	0.115
43	2 44.317	2 54.147	3 3.977	3 13.806	3 23.636	3 33.465	3 43.295	3 53.124	43	0.117
44	2 44.481	2 54.311	3 4.140	3 13.970	3 23.800	3 33.629	3 43.459	3 53.288	44	0.120
45	2 44.645	2 54.475	3 4.304	3 14.134	3 23.963	3 33.793	3 43.622	3 53.452	45	0.123
46	2 44.809	2 54.638	3 4.468	3 14.298	3 24.127	3 33.957	3 43.786	3 53.616	46	0.126
47	2 44.973	2 54.802	3 4.632	3 14.461	3 24.291	3 34.121	3 43.950	3 53.780	47	0.128
48	2 45.137	2 54.966	3 4.796	3 14.625	3 24.455	3 34.284	3 44.114	3 53.943	48	0.131
49	2 45.300	2 55.130	3 4.960	3 14.789	3 24.619	3 34.448	3 44.278	3 54.107	49	0.134
50	2 45.464	2 55.294	3 5.123	3 14.953	3 24.782	3 34.612	3 44.442	3 54.271	50	0.137
51	2 45.628	2 55.458	3 5.287	3 15.117	3 24 946	3 34.776	3 44.605	3 54.435	51	0.139
52	2 45.792	2 55.621	3 5.451	3 15.281	3 25.110	3 34.940	3 44.769	3 54.599	52	0.142
53	2 45.956	2 55.785	3 5.615	3 15.444	3 25.274	3 35.104	3 44.933	3 54.763	53	0.145
54	2 46.120	2 55.949	3 5.779	3 15.608	3 25.438	3 35 267	3 45.097	3 54.926	54	0.147
55	2 46.283	2 56.113	3 5.942	3 15.772	3 25.602	3 35.431	3 45.261	3 55.090	55	0.150
56	2 46.447	2 56.277	3 6.106	3 15.936	3 25.765	3 35.595	3 45.425	3 55.254	56	0.153
57	2 46.611	2 56.441	3 6.270	3 16.100	3 25.929	3 35.759	3 45.588	3 55.418	57	0.156
58	2 46.775	2 56.604	3 6.434	3 16.264	3 26.093	3 35.923	3 45.752	3 55.582	58	0.158
59	2 46.939	2 56.768	3 6.598	3 16.427	3 26.257	3 36.086	3 45.916	3 55.746	59	0.161
Sidereal.	16^h	17^h	18^h	19^h	20^h	21^h	22^h	23^h	For Seconds.	

55.020

TO BE ADDED TO A MEAN TIME INTERVAL.

Mean Solar.	0^h	1^h	2^h	3^h	4^h	5^h	6^h	7^h	For Seconds.	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	0 0.000	0 9.856	0 19.713	0 29.569	0 39.426	0 49.282	0 59.139	1 8.995	0	0.000
1	0 0.164	0 10.021	0 19.877	0 29.734	0 39.590	0 49.447	0 59.303	1 9.160	1	0.003
2	0 0.329	0 10.185	0 20.041	0 29.898	0 39.754	0 49.611	0 59.467	1 9.324	2	0.005
3	0 0.493	0 10.349	0 20.206	0 30.062	0 39.919	0 49.775	0 59.632	1 9.488	3	0.008
4	0 0.657	0 10.514	0 20.370	0 30.227	0 40.083	0 49.939	0 59.796	1 9.652	4	0.011
5	0 0.821	0 10.678	0 20.534	0 30.391	0 40.247	0 50.104	0 59.960	1 9.817	5	0.014
6	0 0.986	0 10.842	0 20.699	0 30.555	0 40.412	0 50.268	1 0.124	1 9.981	6	0.016
7	0 1.150	0 11.006	0 20.863	0 30.719	0 40.576	0 50.432	1 0.289	1 10.145	7	0.019
8	0 1.314	0 11.171	0 21.027	0 30.884	0 40.740	0 50.597	1 0.453	1 10.310	8	0.022
9	0 1.478	0 11.335	0 21.191	0 31.048	0 40.904	0 50.761	1 0.617	1 10.474	9	0.025
10	0 1.643	0 11.499	0 21.356	0 31.212	0 41.069	0 50.925	1 0.782	1 10.638	10	0.027
11	0 1.807	0 11.663	0 21.520	0 31.376	0 41.233	0 51.089	1 0.946	1 10.802	11	0.030
12	0 1.971	0 11.828	0 21.684	0 31.541	0 41.397	0 51.254	1 1.110	1 10.967	12	0.033
13	0 2.136	0 11.992	0 21.849	0 31.705	0 41.561	0 51.418	1 1.274	1 11.131	13	0.036
14	0 2.300	0 12.156	0 22.013	0 31.869	0 41.726	0 51.582	1 1.439	1 11.295	14	0.038
15	0 2.464	0 12.321	0 22.177	0 32.034	0 41.890	0 51.746	1 1.603	1 11.459	15	0.041
16	0 2.628	0 12.485	0 22.341	0 32.198	0 42.054	0 51.911	1 1.767	1 11.624	16	0.044
17	0 2.793	0 12.649	0 22.506	0 32.362	0 42.213	0 52.075	1 1.932	1 11.788	17	0.047
18	0 2.957	0 12.813	0 22.670	0 32.526	0 42.383	0 52.239	1 2.096	1 11.952	18	0.049
19	0 3.121	0 12.978	0 22.834	0 32.691	0 42.547	0 52.404	1 2.260	1 12.117	19	0.052
20	0 3.285	0 13.142	0 22.998	0 32.855	0 42.711	0 52.568	1 2.424	1 12.281	20	0.055
21	0 3.450	0 13.306	0 23.163	0 33.019	0 42.876	0 52.732	1 2.589	1 12.445	21	0.057
22	0 3.614	0 13.471	0 23.327	0 33.183	0 43.040	0 52.896	1 2.753	1 12.609	22	0.060
23	0 3.778	0 13.635	0 23.491	0 33.348	0 43.204	0 53.061	1 2.917	1 12.774	23	0.063
24	0 3.943	0 13.799	0 23.656	0 33.512	0 43.368	0 53.225	1 3.081	1 12.938	24	0.066
25	0 4.107	0 13.963	0 23.820	0 33.676	0 43.533	0 53.389	1 3.246	1 13.102	25	0.068
26	0 4.271	0 14.128	0 23.984	0 33.841	0 43.697	0 53.554	1 3.410	1 13.266	26	0.071
27	0 4.435	0 14.292	0 24.148	0 34.005	0 43.861	0 53.718	1 3.574	1 13.431	27	0.074
28	0 4.600	0 14.456	0 24.313	0 34.169	0 44.026	0 53.882	1 3.739	1 13.595	28	0.077
29	0 4.764	0 14.620	0 24.477	0 34.333	0 44.190	0 54.046	1 3.903	1 13.759	29	0.079
30	0 4.928	0 14.785	0 24.641	0 34.498	0 44.354	0 54.211	1 4.067	1 13.924	30	0.082
31	0 5.093	0 14.949	0 24.805	0 34.662	0 44.518	0 54.375	1 4.231	1 14.088	31	0.085
32	0 5.257	0 15.113	0 24.970	0 34.826	0 44.683	0 54.539	1 4.396	1 14.252	32	0.088
33	0 5.421	0 15.278	0 25.134	0 34.990	0 44.847	0 54.703	1 4.560	1 14.416	33	0.090
34	0 5.585	0 15.442	0 25.298	0 35.155	0 45.011	0 54.868	1 4.724	1 14.581	34	0.093
35	0 5.750	0 15.606	0 25.463	0 35.319	0 45.176	0 55.032	1 4.888	1 14.745	35	0.096
36	0 5.914	0 15.770	0 25.627	0 35.483	0 45.340	0 55.196	1 5.053	1 14.909	36	0.099
37	0 6.078	0 15.935	0 25.791	0 35.648	0 45.504	0 55.361	1 5.217	1 15.073	37	0.101
38	0 6.242	0 16.099	0 25.955	0 35.812	0 45.668	0 55.525	1 5.381	1 15.238	38	0.104
39	0 6.407	0 16.263	0 26.120	0 35.976	0 45.833	0 55.689	1 5.546	1 15.402	39	0.107
40	0 6.571	0 16.427	0 26.284	0 36.140	0 45.997	0 55.853	1 5.710	1 15.566	40	0.110
41	0 6.735	0 16.592	0 26.448	0 36.305	0 46.161	0 56.018	1 5.874	1 15.731	41	0.112
42	0 6.900	0 16.756	0 26.612	0 36.469	0 46.325	0 56.182	1 6.038	1 15.895	42	0.115
43	0 7.064	0 16.920	0 26.777	0 36.633	0 46.490	0 56.346	1 6.203	1 16.059	43	0.118
44	0 7.228	0 17.085	0 26.941	0 36.798	0 46.654	0 56.510	1 6.367	1 16.223	44	0.120
45	0 7.392	0 17.249	0 27.105	0 36.962	0 46.818	0 56.675	1 6.531	1 16.388	45	0.123
46	0 7.557	0 17.413	0 27.270	0 37.126	0 46.983	0 56.839	1 6.695	1 16.552	46	0.126
47	0 7.721	0 17.577	0 27.434	0 37.290	0 47.147	0 57.003	1 6.860	1 16.716	47	0.129
48	0 7.885	0 17.742	0 27.598	0 37.455	0 47.311	0 57.168	1 7.024	1 16.881	48	0.131
49	0 8.049	0 17.906	0 27.762	0 37.619	0 47.475	0 57.332	1 7.188	1 17.045	49	0.134
50	0 8.214	0 18.070	0 27.927	0 37.783	0 47.640	0 57.496	1 7.353	1 17.209	50	0.137
51	0 8.378	0 18.234	0 28.091	0 37.947	0 47.804	0 57.660	1 7.517	1 17.373	51	0.140
52	0 8.542	0 18.399	0 28.255	0 38.112	0 47.968	0 57.825	1 7.681	1 17.538	52	0.142
53	0 8.707	0 18.563	0 28.420	0 38.276	0 48.132	0 57.989	1 7.845	1 17.702	53	0.145
54	0 8.871	0 18.727	0 28.584	0 38.440	0 48.297	0 58.153	1 8.010	1 17.866	54	0.148
55	0 9.035	0 18.892	0 28.748	0 38.605	0 48.461	0 58.317	1 8.174	1 18.030	55	0.151
56	0 9.199	0 19.056	0 28.912	0 38.769	0 48.625	0 58.482	1 8.338	1 18.195	56	0.153
57	0 9.364	0 19.220	0 29.077	0 38.933	0 48.790	0 58.646	1 8.502	1 18.359	57	0.156
58	0 9.528	0 19.384	0 29.241	0 39.097	0 48.954	0 58.810	1 8.667	1 18.523	58	0.159
59	0 9.692	0 19.549	0 29.405	0 39.262	0 49.118	0 58.975	1 8.831	1 18.688	59	0.162
Mean Solar.	0^h	1^h	2^h	3^h	4^h	5^h	6^h	7^h	For Seconds.	

EPH 1906

TO BE ADDED TO A MEAN TIME INTERVAL.

Mean Solar.	8^h	9^h	10^h	11^h	12^h	13^h	14^h	15^h	For Seconds.	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	1 18.852	1 28.708	1 38.565	1 48.421	1 58.278	2 8.134	2 17.991	2 27.847	0	0.000
1	1 19.016	1 28.873	1 38.729	1 48.585	1 58.442	2 8.298	2 18.155	2 28.011	1	0.003
2	1 19.180	1 29.037	1 38.893	1 48.750	1 58.606	2 8.463	2 18.319	2 28.176	2	0.005
3	1 19.345	1 29.201	1 39.058	1 48.914	1 58.771	2 8.627	2 18.483	2 28.340	3	0.008
4	1 19.509	1 29.365	1 39.222	1 49.078	1 58.935	2 8.791	2 18.648	2 28.504	4	0.011
5	1 19.673	1 29.530	1 39.386	1 49.243	1 59.099	2 8.956	2 18.812	2 28.668	5	0.014
6	1 19.837	1 29.694	1 39.550	1 49.407	1 59.263	2 9.120	2 18.976	2 28.833	6	0.016
7	1 20.002	1 29.858	1 39.715	1 49.571	1 59.428	2 9.284	2 19.141	2 28.997	7	0.019
8	1 20.166	1 30.022	1 39.879	1 49.735	1 59.592	2 9.448	2 19.305	2 29.161	8	0.022
9	1 20.330	1 30.187	1 40.043	1 49.900	1 59.756	2 9.613	2 19.469	2 29.326	9	0.025
10	1 20.495	1 30.351	1 40.207	1 50.064	1 59.920	2 9.777	2 19.633	2 29.490	10	0.027
11	1 20.659	1 30.515	1 40.372	1 50.228	2 0.085	2 9.941	2 19.798	2 29.654	11	0.030
12	1 20.823	1 30.680	1 40.536	1 50.393	2 0.249	2 10.105	2 19.962	2 29.818	12	0.033
13	1 20.987	1 30.844	1 40.700	1 50.557	2 0.413	2 10.270	2 20.126	2 29.983	13	0.036
14	1 21.152	1 31.008	1 40.865	1 50.721	2 0.578	2 10.434	2 20.290	2 30.147	14	0.038
15	1 21.316	1 31.172	1 41.029	1 50.885	2 0.742	2 10.598	2 20.455	2 30.311	15	0.041
16	1 21.480	1 31.337	1 41.193	1 51.050	2 0.906	2 10.763	2 20.619	2 30.476	16	0.044
17	1 21.644	1 31.501	1 41.357	1 51.214	2 1.070	2 10.927	2 20.783	2 30.640	17	0.047
18	1 21.809	1 31.665	1 41.522	1 51.378	2 1.235	2 11.091	2 20.948	2 30.804	18	0.049
19	1 21.973	1 31.829	1 41.686	1 51.542	2 1.399	2 11.255	2 21.112	2 30.968	19	0.052
20	1 22.137	1 31.994	1 41.850	1 51.707	2 1.563	2 11.420	2 21.276	2 31.133	20	0.055
21	1 22.302	1 32.158	1 42.015	1 51.871	2 1.727	2 11.584	2 21.440	2 31.297	21	0.057
22	1 22.466	1 32.322	1 42.179	1 52.035	2 1.892	2 11.748	2 21.605	2 31.461	22	0.060
23	1 22.630	1 32.487	1 42.343	1 52.200	2 2.056	2 11.912	2 21.769	2 31.625	23	0.063
24	1 22.794	1 32.651	1 42.507	1 52.364	2 2.220	2 12.077	2 21.933	2 31.790	24	0.066
25	1 22.959	1 32.815	1 42.672	1 52.528	2 2.385	2 12.241	2 22.098	2 31.954	25	0.068
26	1 23.123	1 32.979	1 42.836	1 52.692	2 2.549	2 12.405	2 22.262	2 32.118	26	0.071
27	1 23.287	1 33.144	1 43.000	1 52.857	2 2.713	2 12.570	2 22.426	2 32.283	27	0.074
28	1 23.451	1 33.308	1 43.164	1 53.021	2 2.877	2 12.734	2 22.590	2 32.447	28	0.077
29	1 23.616	1 33.472	1 43.329	1 53.185	2 3.042	2 12.898	2 22.755	2 32.611	29	0.079
30	1 23.780	1 33.637	1 43.493	1 53.349	2 3.206	2 13.062	2 22.919	2 32.775	30	0.082
31	1 23.944	1 33.801	1 43.657	1 53.514	2 3.370	2 13.227	2 23.083	2 32.940	31	0.085
32	1 24.109	1 33.965	1 43.822	1 53.678	2 3.534	2 13.391	2 23.247	2 33.104	32	0.088
33	1 24.273	1 34.129	1 43.986	1 53.842	2 3.699	2 13.555	2 23.412	2 33.268	33	0.090
34	1 24.437	1 34.294	1 44.150	1 54.007	2 3.863	2 13.720	2 23.576	2 33.432	34	0.093
35	1 24.601	1 34.458	1 44.314	1 54.171	2 4.027	2 13.884	2 23.740	2 33.597	35	0.096
36	1 24.766	1 34.622	1 44.479	1 54.335	2 4.192	2 14.048	2 23.905	2 33.761	36	0.099
37	1 24.930	1 34.786	1 44.643	1 54.499	2 4.356	2 14.212	2 24.069	2 33.925	37	0.101
38	1 25.094	1 34.951	1 44.807	1 54.664	2 4.520	2 14.377	2 24.233	2 34.090	38	0.104
39	1 25.259	1 35.115	1 44.971	1 54.828	2 4.684	2 14.541	2 24.397	2 34.254	39	0.107
40	1 25.423	1 35.279	1 45.136	1 54.992	2 4.849	2 14.705	2 24.562	2 34.418	40	0.110
41	1 25.587	1 35.444	1 45.300	1 55.156	2 5.013	2 14.869	2 24.726	2 34.582	41	0.112
42	1 25.751	1 35.608	1 45.464	1 55.321	2 5.177	2 15.034	2 24.890	2 34.747	42	0.115
43	1 25.916	1 35.772	1 45.629	1 55.485	2 5.342	2 15.198	2 25.054	2 34.911	43	0.118
44	1 26.080	1 35.936	1 45.793	1 55.649	2 5.506	2 15.362	2 25.219	2 35.075	44	0.120
45	1 26.244	1 36.101	1 45.957	1 55.814	2 5.670	2 15.527	2 25.383	2 35.239	45	0.123
46	1 26.408	1 36.265	1 46.121	1 55.978	2 5.834	2 15.691	2 25.547	2 35.404	46	0.126
47	1 26.573	1 36.429	1 46.286	1 56.142	2 5.999	2 15.855	2 25.712	2 35.568	47	0.129
48	1 26.737	1 36.593	1 46.450	1 56.306	2 6.163	2 16.019	2 25.876	2 35.732	48	0.131
49	1 26.901	1 36.758	1 46.614	1 56.471	2 6.327	2 16.184	2 26.040	2 35.897	49	0.134
50	1 27.066	1 36.922	1 46.778	1 56.635	2 6.491	2 16.348	2 26.204	2 36.061	50	0.137
51	1 27.230	1 37.086	1 46.943	1 56.799	2 6.656	2 16.512	2 26.369	2 36.225	51	0.140
52	1 27.394	1 37.251	1 47.107	1 56.964	2 6.820	2 16.676	2 26.533	2 36.389	52	0.142
53	1 27.558	1 37.415	1 47.271	1 57.128	2 6.984	2 16.841	2 26.697	2 36.554	53	0.145
54	1 27.723	1 37.579	1 47.436	1 57.292	2 7.149	2 17.005	2 26.861	2 36.718	54	0.148
55	1 27.887	1 37.743	1 47.600	1 57.456	2 7.313	2 17.169	2 27.026	2 36.882	55	0.151
56	1 28.051	1 37.908	1 47.764	1 57.621	2 7.477	2 17.334	2 27.190	2 37.047	56	0.153
57	1 28.215	1 38.072	1 47.928	1 57.785	2 7.641	2 17.498	2 27.354	2 37.211	57	0.156
58	1 28.380	1 38.236	1 48.093	1 57.949	2 7.806	2 17.662	2 27.519	2 37.375	58	0.159
59	1 28.544	1 38.400	1 48.257	1 58.113	2 7.970	2 17.826	2 27.683	2 37.539	59	0.162
Mean Solar.	8^h	9^h	10^h	11^h	12^h	13^h	14^h	15^h	For Seconds.	

TO BE ADDED TO A MEAN TIME INTERVAL.

Mean Solar.	16^h	17^h	18^h	19^h	20^h	21^h	22^h	23^h	For Seconds.	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	2 37.704	2 47.560	2 57.417	3 7.273	3 17.129	3 26.986	3 36.842	3 46.699	0	0.000
1	2 37.868	2 47.724	2 57.581	3 7.437	3 17.294	3 27.150	3 37.007	3 46.863	1	0.003
2	2 38.032	2 47.889	2 57.745	3 7.602	3 17.458	3 27.315	3 37.171	3 47.027	2	0.005
3	2 38.196	2 48.053	2 57.909	3 7.766	3 17.622	3 27.479	3 37.335	3 47.192	3	0.008
4	2 38.361	2 48.217	2 58.074	3 7.930	3 17.787	3 27.643	3 37.500	3 47.356	4	0.011
5	2 38.525	2 48.381	2 58.238	3 8.094	3 17.951	3 27.807	3 37.664	3 47.520	5	0.014
6	2 38.689	2 48.546	2 58.402	3 8.259	3 18.115	3 27.972	3 37.828	3 47.685	6	0.016
7	2 38.854	2 48.710	2 58.566	3 8.423	3 18.279	3 28.136	3 37.992	3 47.849	7	0.019
8	2 39.018	2 48.874	2 58.731	3 8.587	3 18.444	3 28.300	3 38.157	3 48.013	8	0.022
9	2 39.182	2 49.039	2 58.895	3 8.751	3 18.608	3 28.464	3 38.321	3 48.177	9	0.025
10	2 39.346	2 49.203	2 59.059	3 8.916	3 18.772	3 28.629	3 38.485	3 48.342	10	0.027
11	2 39.511	2 49.367	2 59.224	3 9.080	3 18.937	3 28.793	3 38.649	3 48.506	11	0.030
12	2 39.675	2 49.531	2 59.388	3 9.244	3 19.101	3 28.957	3 38.814	3 48.670	12	0.033
13	2 39.839	2 49.696	2 59.552	3 9.409	3 19.265	3 29.122	3 38.978	3 48.834	13	0.036
14	2 40.003	2 49.860	2 59.716	3 9.573	3 19.429	3 29.286	3 39.142	3 48.999	14	0.038
15	2 40.168	2 50.024	2 59.881	3 9.737	3 19.594	3 29.450	3 39.307	3 49.163	15	0.041
16	2 40.332	2 50.188	3 0.045	3 9.901	3 19.758	3 29.614	3 39.471	3 49.327	16	0.044
17	2 40.496	2 50.353	3 0.209	3 10.066	3 19.922	3 29.779	3 39.635	3 49.492	17	0.047
18	2 40.661	2 50.517	3 0.373	3 10.230	3 20.086	3 29.943	3 39.799	3 49.656	18	0.049
19	2 40.825	2 50.681	3 0.538	3 10.394	3 20.251	3 30.107	3 39.964	3 49.820	19	0.052
20	2 40.989	2 50.846	3 0.702	3 10.559	3 20.415	3 30.271	3 40.128	3 49.984	20	0.055
21	2 41.153	2 51.010	3 0.866	3 10.723	3 20.579	3 30.436	3 40.292	3 50.149	21	0.057
22	2 41.318	2 51.174	3 1.031	3 10.887	3 20.744	3 30.600	3 40.456	3 50.313	22	0.060
23	2 41.482	2 51.338	3 1.195	3 11.051	3 20.908	3 30.764	3 40.621	3 50.477	23	0.063
24	2 41.646	2 51.503	3 1.359	3 11.216	3 21.072	3 30.929	3 40.785	3 50.642	24	0.066
25	2 41.810	2 51.667	3 1.523	3 11.380	3 21.236	3 31.093	3 40.949	3 50.806	25	0.068
26	2 41.975	2 51.831	3 1.688	3 11.544	3 21.401	3 31.257	3 41.114	3 50.970	26	0.071
27	2 42.139	2 51.995	3 1.852	3 11.708	3 21.565	3 31.421	3 41.278	3 51.134	27	0.074
28	2 42.303	2 52.160	3 2.016	3 11.873	3 21.729	3 31.586	3 41.442	3 51.299	28	0.077
29	2 42.468	2 52.324	3 2.181	3 12.037	3 21.893	3 31.750	3 41.606	3 51.463	29	0.079
30	2 42.632	2 52.488	3 2.345	3 12.201	3 22.058	3 31.914	3 41.771	3 51.627	30	0.082
31	2 42.796	2 52.653	3 2.509	3 12.366	3 22.222	3 32.078	3 41.935	3 51.791	31	0.085
32	2 42.960	2 52.817	3 2.673	3 12.530	3 22.386	3 32.243	3 42.099	3 51.956	32	0.088
33	2 43.125	2 52.981	3 2.838	3 12.694	3 22.551	3 32.407	3 42.264	3 52.120	33	0.090
34	2 43.289	2 53.145	3 3.002	3 12.858	3 22.715	3 32.571	3 42.428	3 52.284	34	0.093
35	2 43.453	2 53.310	3 3.166	3 13.023	3 22.879	3 32.736	3 42.592	3 52.449	35	0.096
36	2 43.617	2 53.474	3 3.330	3 13.187	3 23.043	3 32.900	3 42.756	3 52.613	36	0.099
37	2 43.782	2 53.638	3 3.495	3 13.351	3 23.208	3 33.064	3 42.921	3 52.777	37	0.101
38	2 43.946	2 53.803	3 3.659	3 13.515	3 23.372	3 33.228	3 43.085	3 52.941	38	0.104
39	2 44.110	2 53.967	3 3.823	3 13.680	3 23.536	3 33.393	3 43.249	3 53.106	39	0.107
40	2 44.275	2 54.131	3 3.988	3 13.844	3 23.700	3 33.557	3 43.413	3 53.270	40	0.110
41	2 44.439	2 54.295	3 4.152	3 14.008	3 23.865	3 33.721	3 43.578	3 53.434	41	0.112
42	2 44.603	2 54.460	3 4.316	3 14.173	3 24.029	3 33.886	3 43.742	3 53.598	42	0.115
43	2 44.767	2 54.624	3 4.480	3 14.337	3 24.193	3 34.050	3 43.906	3 53.763	43	0.118
44	2 44.932	2 54.788	3 4.645	3 14.501	3 24.358	3 34.214	3 44.071	3 53.929	44	0.120
45	2 45.096	2 54.952	3 4.809	3 14.665	3 24.522	3 34.378	3 44.235	3 54.091	45	0.123
46	2 45.260	2 55.117	3 4.973	3 14.830	3 24.686	3 34.543	3 44.399	3 54.256	46	0.126
47	2 45.425	2 55.281	3 5.137	3 14.994	3 24.850	3 34.707	3 44.563	3 54.420	47	0.129
48	2 45.589	2 55.445	3 5.302	3 15.158	3 25.015	3 34.871	3 44.728	3 54.584	48	0.131
49	2 45.753	2 55.610	3 5.466	3 15.322	3 25.179	3 35.035	3 44.892	3 54.748	49	0.134
50	2 45.917	2 55.774	3 5.630	3 15.487	3 25.343	3 35.200	3 45.056	3 54.913	50	0.137
51	2 46.082	2 55.938	3 5.795	3 15.651	3 25.508	3 35.364	3 45.220	3 55.077	51	0.140
52	2 46.246	2 56.102	3 5.959	3 15.815	3 25.672	3 35.528	3 45.385	3 55.241	52	0.142
53	2 46.410	2 56.267	3 6.123	3 15.980	3 25.836	3 35.693	3 45.549	3 55.405	53	0.145
54	2 46.574	2 56.431	3 6.287	3 16.144	3 26.000	3 35.857	3 45.713	3 55.570	54	0.148
55	2 46.739	2 56.595	3 6.452	3 16.308	3 26.165	3 36.021	3 45.878	3 55.734	55	0.151
56	2 46.903	2 56.759	3 6.616	3 16.472	3 26.329	3 36.185	3 46.042	3 55.898	56	0.153
57	2 47.067	2 56.924	3 6.780	3 16.637	3 26.493	3 36.350	3 46.206	3 56.063	57	0.156
58	2 47.232	2 57.088	3 6.944	3 16.801	3 26.657	3 36.514	3 46.370	3 56.227	58	0.159
59	2 47.396	2 57.252	3 7.109	3 16.965	3 26.822	3 36.678	3 46.535	3 56.391	59	0.162
Mean Solar.	16^h	17^h	18^h	19^h	20^h	21^h	22^h	23^h	For Seconds.	

TABLE FOR FINDING THE LATITUDE BY AN OBSERVED ALTITUDE OF POLARIS.

Reduce the observed altitude of Polaris to the true altitude.

Reduce the recorded time of observation to the local sidereal time.

If the sidereal time is
- less than 1ʰ 25ᵐ.4, subtract it from 1ʰ 25ᵐ.4;
- between 1ʰ 25ᵐ.4 and 13ʰ, subtract 1ʰ 25ᵐ.4 from it;
- greater than 13ʰ 25ᵐ.4, subtract it from 25ʰ 25ᵐ.4;

and the remainder is the hour angle of Polaris.

With this hour angle take out the correction from Table IV (below), and add it to or subtract it from the true altitude, according to its sign. The result is the approximate latitude of the place.

Example.—1906, November 3, at 10ʰ 40ᵐ 30ˢ, P. M., mean solar time, in longitude 29° east of Greenwich, suppose the true altitude of Polaris to be 43° 20′: required the latitude of the place.

	h	m	s
Local astronomical mean time	10	40	30
Reduction from Table III, for 10ʰ 40ᵐ 30ˢ . . .	+	1	45
Greenwich sidereal time of mean noon, November 3, page 165 .	14	47	20
Reduction from Table III, for longitude (= 1ʰ 56ᵐ east, or minus)	—	0	19
Sum (having regard to signs) is equal to local sidereal time .	1	29	16
	h	m	s
	1	25	24
Subtract sidereal time	1	29	16
Remainder is equal to hour angle of Polaris . . .	0	3	52

		°	′
True altitude . . .	+	43	20
Correction from Table IV (below)	—	1	12
Approximate latitude . .	+	42	8

TABLE IV—1906.

Hour angle.	0ʰ		1ʰ		2ʰ		3ʰ		4ʰ		5ʰ	
m	° ′	′	° ′	′	° ′	′	° ′	′	° ′	′	° ′	′
0	- 1 11.7	0.0	- 1 9.2	0.4	- 1 1.9	0.8	- 0 50.3	1.1	- 0 35.3	1.4	- 0 17.9	1.6
5	1 11.7	0.1	1 8.8	0.5	1 1.1	0.9	0 49.2	1.2	0 33.9	1.4	0 16.3	1.5
10	1 11.6	0.1	1 8.3	0.5	1 0.2	0.8	0 48.0	1.2	0 32.5	1.4	0 14.8	1.5
15	1 11.5	0.1	1 7.8	0.5	0 59.4	0.9	0 46.8	1.2	0 31.1	1.4	0 13.3	1.6
20	- 1 11.4	0.2	- 1 7.3	0.6	- 0 58.5	0.9	- 0 45.6	1.2	- 0 29.7	1.5	- 0 11.7	1.5
25	1 11.2	0.2	1 6.7	0.6	0 57.6	1.0	0 44.4	1.2	0 28.2	1.4	0 10.2	1.6
30	1 11.0	0.2	1 6.1	0.6	0 56.6	1.0	0 43.2	1.3	0 26.8	1.4	0 8.6	1.5
35	1 10.8	0.2	1 5.5	0.7	0 55.6	1.0	0 41.9	1.3	0 25.4	1.5	0 7.1	1.6
40	- 1 10.6	0.3	- 1 4.8	0.7	- 0 54.6	1.0	- 0 40.6	1.3	- 0 23.9	1.5	- 0 5.5	1.6
45	1 10.3	0.3	1 4.1	0.7	0 53.6	1.1	0 39.3	1.3	0 22.4	1.5	0 3.9	1.6
50	1 10.0	0.4	1 3.4	0.7	0 52.5	1.1	0 38.0	1.4	0 20.9	1.5	0 2.3	1.5
55	1 9.6	0.4	1 2.7	0.8	0 51.4	1.1	0 36.6	1.3	0 19.4	1.5	- 0 0.8	1.5
60	- 1 9.2		- 1 1.9		- 0 50.3		- 0 35.3		- 0 17.9		+ 0 0.7	

Hour angle.	6ʰ		7ʰ		8ʰ		9ʰ		10ʰ		11ʰ	
m	° ′	′	° ′	′	° ′	′	° ′	′	° ′	′	° ′	′
0	+ 0 0.7	1.6	+ 0 19.2	1.5	+ 0 36.4	1.3	+ 0 51.1	1.0	+ 1 2.3	0.7	+ 1 9.3	0.4
5	0 2.3	1.6	0 20.7	1.5	0 37.7	1.3	0 52.1	1.1	1 3.0	0.7	1 9.7	0.3
10	0 3.9	1.5	0 22.2	1.5	0 39.0	1.3	0 53.2	1.0	1 3.7	0.7	1 10.0	0.3
15	0 5.4	1.6	0 23.7	1.5	0 40.3	1.3	0 54.2	1.0	1 4.4	0.7	1 10.3	0.3
20	+ 0 7.0	1.5	+ 0 25.2	1.4	+ 0 41.6	1.3	+ 0 55.2	1.0	+ 1 5.1	0.6	+ 1 10.6	0.2
25	0 8.5	1.6	0 26.6	1.5	0 42.9	1.2	—0 56.2	0.9	1 5.7	0.6	1 10.8	0.3
30	0 10.1	1.5	0 28.1	1.4	0 44.1	1.2	0 57.1	1.0	1 6.3	0.6	1 11.1	0.2
35	0 11.6	1.6	0 29.5	1.4	0 45.3	1.2	0 58.1	0.9	1 6.9	0.5	1 11.3	0.1
40	+ 0 13.2	1.5	+ 0 30.9	1.4	+ 0 46.5	1.2	+ 0 59.0	0.8	+ 1 7.4	0.5	+ 1 11.4	0.1
45	0 14.7	1.5	0 32.3	1.4	0 47.7	1.2	0 59.8	0.9	1 7.9	0.5	1 11.5	0.1
50	0 16.2	1.5	0 33.7	1.3	0 48.9	1.1	1 0.7	0.8	1 8.4	0.5	1 11.6	0.1
55	0 17.7	1.5	0 35.0	1.4	0 50.0	1.1	1 1.5	0.8	1 8.9	0.4	1 11.7	0.0
60	+ 0 19.2		+ 0 36.4		+ 0 51.1		+ 1 2.3		+ 1 9.3		+ 1 11.7	